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Founded 1876

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With the compliments of

Geo. M. Woodworth.

Supervising Surgeon-General.



ANNUAL REPORT

OF THE

SUPERVISING SURGEON

OF THE

MARINE-HOSPITAL SERVICE OF THE UNITED STATES,

FOR

THE FISCAL YEAR 1874.

John M. Woodworth, M. D.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1874.

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CONTENTS.

Letter of Supervising Surgeon submitting Report.....	Page. vii
REPORT :	
Operations of the Marine-Hospital Service—1873-'74.....	3
Comparative average results.....	4
Correction of abuses.....	5, 8, 9
Defects needing legislative remedy.....	6
Collection of hospital-dues.....	7
Definition of the term "seaman".....	7
Extension of the Service.....	8
Cost of the Service to the Government.....	8
Port inspections and office duties.....	9
The Government hospitals.....	11
Cost of relief in.....	12
Suggestions concerning.....	13
Preventive medicine in the Service.....	14
Increasing importance of the Service.....	15
Statistics: Financial and Economic.....	17
A.—Summary Statement of the Operations of the Service for the Year ended June 30, 1874.....	19
B.—Comparative Economic Exhibits of the Service.....	20
C.—Exhibit of the Operations of the Service at each Port during the Year ended June 30, 1874.....	21
D.—Statement of Annual Collections, Appropriations, and Expenditures, on account of the Service from October 1, 1798, to June 30, 1874....	23
E.—Tabular Record of United States Marine-Hospital Buildings from A. D. 1800 to close of Fiscal Year 1874.....	25
Statistics: Medical and Surgical.....	27
I.—Table of Hospital-Relief Districts.....	29
II.—Statement, by Districts, of the Number of Patients treated each Month during the Year ended June 30, 1874.....	31
III.—Ratio of Patients treated in each District.....	31
IV.—Average Duration of Treatment (in Hospital) in each District.....	31
V.—Tabular Statement, by Months and Districts, of Diseases and Injuries treated during the Year ended June 30, 1874.....	32
VI.—Relative Proportions of Diseases and Injuries, and of given Diseases and Injuries.....	84
VII.—Tabular Statement, by Months and Districts, of Causes of Mortality among Patients of the Service, during the Year ended June 30, 1874.....	85
VIII.—Ratio of Deaths from Specified Causes.....	92
IX.—Exhibit, by Months, of Extent and Average Duration of Hospital-Relief, Prevalent Diseases, and Rate and Prevalent Causes of Mortality.....	92

DIAGRAMS, following page	Page. 92
A.—Showing relative Prevalence of Ague and Remittent Fever, Rheumatism, and Syphilis, in each District.	
B.—Showing relative Prevalence of Phthisis Pulmonalis and Diseases of the Respiratory System, Diseases of the Digestive System, and Injuries, in each District.	
C.—Showing relative Prevalence of Ague and Remittent Fever, Rheumatism, and Syphilis, each Month.	
D.—Showing relative Prevalence of Phthisis Pulmonalis and Diseases of the Respiratory System, Diseases of the Digestive System, and Injuries, each Month.	
APPENDIX:	
Comments on the Medical and Surgical Statistics, by the Supervising Surgeon	97
Note on the Contributed Papers, by the Supervising Surgeon.....	102
The Hygiene of the Forecastle, by HEBER SMITH, M. D.....	105
American Commerce and the Service, by FRANK W. REILLY, M. D.....	121
Unseaworthy Sailors, by C. HENRY KING, M. D.....	131
Sailors and their Diseases in Chelsea Hospital, by A. B. BANCROFT, M. D...	139
The Service on Cape Cod, by PETER PINEO, M. D.....	151
The Freedman and the Service on the Ohio, by P. H. BAILHACHE, M. D.....	155
Diseases of River-men, their Causes and Prevention, by HORACE WARDNER, M. D.....	163
Preventable Disease on the Great Lakes, by JAMES M. ALLEN, M. D.....	169
Syphilis: The Scourge of the Sailor and the Public Health, by FRED. R. STURGIS, M. D.....	175
Yellow Fever at Pensacola in 1874, by JAMES S. HERRON, M. D.....	193
The Yellow-Fever Epidemic of 1873, by FRANK W. REILLY, M. D.....	201

TO
THE HONORABLE
THE SECRETARY OF THE TREASURY.

SIR :

I have the honor to submit herewith a report of the operations of the Marine-Hospital Service of the United States for the fiscal year 1874, (1 July 1873 to 30 June 1874,) being my third annual report.

Very respectfully,

JOHN M. WOODWORTH,

Supervising Surgeon.

SUPERVISING SURGEON'S OFFICE,

15 *December* 1874.

OPERATIONS

OF THE

UNITED STATES MARINE-HOSPITAL SERVICE:

1874.

(1)

THE MARINE-HOSPITAL SERVICE OF THE UNITED STATES

DURING THE

FISCAL YEAR 1873-'74.

ON the 30th of June, 1874, the merchant marine of the United States comprised a total of 32,486 vessels of all kinds, manned by an estimated ^(a) force of 213,553 officers and men, and with an aggregate capacity of 4,800,652 tons' burden. Certain classes of these vessels—employed in the foreign and coasting trades, and numbering in all, at that date, 20,072 sail, of 3,541,921 tons' burden, and with an aggregate strength of 157,559 officers and men—are subject to the provisions of the marine-hospital laws, the execution of which is devolved upon the Secretary of the Treasury. Under these laws, and since the year 1798, a small monthly sum is deducted from the wages of the crews of such vessels; these sums forming a fund which is expended under the administration of the Marine-Hospital Service in the care and relief of the sick and disabled of this body of men; any deficiency which may arise from time to time being met by an appropriation from the public treasury.

During the fiscal year 1874 there was expended on account of this Service a grand total of \$400,951 58, for which sum 400,452 days of relief were furnished, at ninety-one ports, to 14,364 sick and disabled merchant seamen, thus making the average cost of relief one dollar per day for each patient. ^(b) Of this number, 12,605 serious cases of disease or injury were treated in hospital for an average period of 31.6 days each, with a mortality of about three and one-half per cent.; and 1,759 minor cases were furnished medical and surgical assistance without admission to hospital.

Of hospital dues there was collected during the year a total of \$346,676 31, at one hundred and thirty ports, leaving the sum of \$54,275 57 to be defrayed from the deficiency appropriation. The average annual cost of each patient treated was \$27 91, of which

^a Based on known proportion of crew to tonnage.

^b This relief includes medical and surgical treatment, medicines and appliances, food, shelter, hospital clothing, washing, nursing, &c.; and the expenditures cover the cost of the foregoing, together with the cost of isolated treatment of contagious diseases, the transportation of patients to hospital ports, the burial of the dead, &c., and the salaries and all other costs of administration; in short, all disbursements on account of the Service, except for repairs, &c., to hospital buildings, which items are under the control of the Supervising Architect.

amount \$24 14 was defrayed by hospital-money collections—making the net cost to the Government \$3 77 for each patient relieved.

As compared with previous years, the foregoing figures show—

(1) A decrease of five-and-one-fourth per cent. from the total number of days' relief furnished in 1873, and an increase of eight per cent. over the number of days' relief furnished in 1870.

(2) An increase over 1873 of six per cent., and over 1870 of thirty-six per cent., in the number of seamen relieved.

(3) A reduction in the average duration of treatment of about five per cent. from that of 1873, and of over ten per cent. from that of 1870.

(4) An increase of hospital dues collected, amounting to \$10,830 36 more than in 1873; to \$22,975 26 more than in 1872; to \$70,675 69 more than in 1871; and to \$178,522 61 more than in 1870.

(5) A decrease in the deficiency, amounting to \$32,381 46 less than in 1873; to \$18,287 49 less than in 1872; to \$110,661 43 less than in 1871; and to \$183,194 73 less than in 1870.

(6) A decrease in the average annual cost of each patient treated of \$3 32 from the cost in 1873, and of \$10 52 from the cost in 1870.

(7) A decrease, in the net cost to the Government for each patient relieved, of \$3 88 from such net cost in 1873, and of \$22 51 from such net cost in 1870.

In the foregoing comparison the fiscal year 1870 is cited, because that year was the last of the old system, or no-system, under which this Service had been conducted since 1798; and the object of the comparison is to show, among other things, what improvement is due to the act of June 29, 1870, under which the Service was reorganized, and has been administered for the past three years, the fiscal year 1871 having been a transition period, pending the appointment of a Supervising Surgeon, and the preparation of the machinery necessary for the execution of the new enactment. Incidentally, also, the results thus collated show some of the defects of the present statute, and emphasize the necessity set forth in previous reports for additional legislation in the interests both of the public treasury and of the sailor himself.

Taking up the points of contrast above given, with the last fiscal year (1874) as the standard of comparison throughout, it is seen that since 1870 the increase in the number of days' relief furnished is only about eight per cent., (1), and this, although there has been during the same period an increase of about fourteen and one-half per cent. in the tonnage of vessels subject to hospital dues, and, consequently, in the

number of seamen to be cared for by the Service. The actual number of individuals relieved, however, was thirty-six per cent. greater than in 1870, (2); and these two factors give a reduction in the average duration of treatment for each patient of over 10 per cent. (3) as compared with the earlier year.

In order to estimate correctly the bearing of this reduction, it should be stated that formerly permits for hospital-relief were granted for a period of four months, at the expiration of which time the patient was discharged, no matter what his condition. It is hardly credible, but the fact is proven, both by the records of this office and by published reports, that for years it was the custom to turn American sailors out of hospital at the expiration of the hospital permit, whether they were sick or well. Sometimes, as a matter of common humanity, and through the personal efforts of the surgeon or collector, admissions to city hospitals, almshouses, &c., were obtained for extreme cases; but not unfrequently they were simply turned adrift, without further concern on the part of the Service. While still adhering to the original provision of the law, (which prescribed "temporary relief" only,) no patient now admitted to marine-hospital relief is discharged until convalescent, or suitably and decently provided for, if permanently disabled.

This reduction in the average period of stay in hospital is due, first, to the higher general standard of professional attainments and efficiency among the medical officers of the Service; secondly, to the operation of the new regulation by which hospital-permits are issued for two months only, at the expiration of which, if further relief be necessary, the details of the case are reported to this office, and such further period is authorized by the Secretary as, in the judgment of the Supervising Surgeon, may be required to effect a cure; and, lastly, to the correction, through frequent inspections, of an old-time abuse, whereby the Service was made a asylum for the lazy or indigent after the necessity for medical relief had passed. To these causes is due the fact, that while a larger aggregate of individuals has been relieved during the past year than ever before, the aggregate number of days' relief furnished is relatively less; and while the percentage of shirkers and malingerers is cut down, the number of absolutely sick and disabled seamen furnished all needed relief is increased; and thus the extent of the operations of the Service, in its legitimate function, is widened.

It is also largely due to the foregoing causes that the deficiency for the year is less than for any previous year since 1850, and even less

than in the years 1872 and 1873 under the same administration; for it will be seen, by comparing the increase of hospital-dues (4) and the decrease in the deficiency, (5,) that the reduced deficit is due in part only to increased receipts.

DEFECTS NEEDING LEGISLATIVE REMEDY.

The fact that this increase in the amount of hospital-dues collected corresponds neither to the increase of the monthly rate under the present act, nor to the growth of the commercial marine since the passage of that act, has formed the subject of serious consideration; and, without discussing the question of the wisdom, as a matter of public policy, of making the Marine-Hospital Service self-supporting, it is pertinent to this report to show what defects in the present law are believed to be the causes to which are due this discrepancy. To a correct understanding of these causes, and as a matter of history, it should be premised that the original draft of the bill, to reorganize the Marine-Hospital Service, included a provision for the increase of the rate of hospital-money from twenty to *sixty* cents per month, with the avowed objects of making the Service not only self-supporting, but also "more acceptable to the beneficiaries and honorable to the Government." In the Senate discussion upon the passage of the bill this proposed increase to sixty cents per month met with much favor; but it was argued, adversely, that such an increase would be imposing an onerous tax upon the wages of seamen, and unjust, in that, as a matter of public policy, the Government should bear some portion of the expense of caring for the sick and disabled of the merchant marine of the country; that sailors perform other service than merely obtaining private profit for ship-owners; that they are in a sense representative of our commercial interests; have been always treated as the wards of a kind Government, and are a class that must receive such treatment.

The final judgment of Congress being against the propriety and expediency of trebling the rate, as proposed, the sum of forty cents per month was eventually fixed upon. And, as it was estimated that the receipts, at sixty cents per month, would amount to \$648,000—a sum supposed to be necessary to avoid the charges that "the scale of relief was insufficient, and that the seamen had just cause of complaint"—while at forty cents per month, the receipts would be only two-thirds the above sum, or \$432,000, and might fall even below this, an appropriation of \$250,000 was made to meet the anticipated deficit.

As a matter of fact, the receipts for the first fiscal year under the act of 1870, at forty cents per month, were only \$293,592; and during

no year since has there been collected double the average amounts of the last four years of the old rate. This fact gains an economic importance in view of the reasonable certainty that the receipts would now be ample for all legitimate demands upon the Service, if the enactment of 1870, providing for the assessment and collection of the sum of forty cents per month from the wages of merchant seamen, were fully complied with. The difficulties in the way of such compliance have been pointed out in the Annual Report of the Secretary of the Treasury for 1874, (see pp. XXXVIII, XXXIX;) and if, as is believed, it is owing to these difficulties, that only about sixty per cent. of the amount which masters of vessels are authorized to deduct from the wages of their crews, is covered into the marine-hospital fund, it would seem to be only necessary to cure these defects by adequate legislation, in order to make the Service fully self-sustaining, even at the present rate.

Such legislation, it is suggested, would provide some simpler form for making the hospital-dues return—thus relieving masters and owners of the burdensome amount of clerical labor now involved; and would establish some mode of verifying the account—the absence of any means of verification now furnishing inducement to make loose and inaccurate returns. It would provide, also, a statutory definition of the term “seaman;” in default of which, some masters return only such of their crews as are shipped “able,” “ordinary,” or “green hands,” excluding officers, carpenters, sail-makers, &c., while others make other distinctions. It is impracticable to follow out these distinctions when the man comes to claim hospital relief. He may have shipped at one time in one capacity, and paid hospital money, and at another time, or with another captain, in a way to avoid such payment.

As there are 157,559 men employed on vessels subject to hospital dues, and for an average period of about nine months each year, it is fair to presume that a reasonably efficient collection—such as this proposed legislation might secure—would give an aggregate of about \$500,000 per annum under the present rate, a sum sufficient to make the Service as amply self-supporting as it is now believed to be acceptable, not to its “beneficiaries,” but to those whose contributions already so nearly defray its expenses.

The necessity for the provision of hospital relief for sailors employed on vessels of the Coast Survey, Light-House Service, Revenue Marine, and Engineer Corps of the Army not otherwise provided for, and for the revision of the rate of charge for the care of sick seamen of foreign vessels by the Service—subjects which have been presented in previous

reports—is still obvious. Sailors ship indiscriminately on the Government vessels above named, and on merchant vessels; they may be taken sick or be disabled while on one of the former; but, though possibly having paid hospital dues for years on a merchant vessel, they are not, under the present law, entitled to relief from the fund. The rate of charge for sick seamen of foreign vessels was fixed by statute, in 1802, at seventy-five cents per day, an amount which does not cover the actual cost of the relief furnished them; thus practically discriminating against seamen serving on American vessels.

In addition to remedies for the foregoing, it is also suggested that Congress authorize the reception of insane merchant seamen in the Government Hospital for the Insane at the expense of the marine-hospital fund. These seamen are, as a rule, debarred the care that insane paupers receive, because in many States only citizens of such States are eligible for admission into their insane asylums. The responsibility and expense of caring for such patients entitled to relief from the Service is a serious embarrassment in ordinary hospitals, which should, if possible, be avoided.

COST OF THE SERVICE TO THE GOVERNMENT.

The financial importance of the decrease in the average annual cost of each patient treated, (6), and of the reduction in the absolute cost of the Service to the Government, (7), is more clearly seen when it is considered that the number furnished relief in 1874 would, under the old regime, have remained in hospital thirty-five days each, making a total of 502,740 days, which, at the former average per diem rate would have cost \$537,931 80; to offset which there would have been \$176,547 hospital dues collected, leaving the net cost to be borne by the Government \$361,384 80, or over twenty-five dollars for each patient.

The net cost to the Government during the past year is, as already shown, \$3 77 for each patient; or, in the aggregate, \$54,275 57 for the relief of thirty-six per cent. more patients than were cared for in 1870, when the aggregate cost to the Government was \$237,470 30.

It should further be observed that under the old system it was the custom to "farm out" marine patients to the lowest bidder. The abuses which were the natural result of this practice became so flagrant that it was finally forbidden by legislative enactment; and although the prohibition applied only to the expenditure of the deficiency appropriation for a single year, this expression of the judgment of Congress upon the contract system still influences the conduct of the Service. Where it is necessary to provide relief in any other than Government

hospitals, or through other than the regular medical officers of the Service, the best relief facilities of the port are secured at fixed rates for such services as may be required; but no obligation is entered into by the Department to send patients to any one hospital or for any given period. In this way, and by constant supervision through medical officers at large ports, and occasional inspections at the smaller ones, a character of hospital relief is furnished which, for results, whether professional or economic, may invite comparison with any other hospital system in the country.

PORT INSPECTIONS AND OFFICE DUTIES.

Thirty-five of the more important ports have been visited during the year, and at all of these changes of greater or lesser magnitude, either in the mode of transacting the business of the Service in the custom-houses or in the conduct of the hospitals, have been found necessary. The defects are generally legacies from the pre-supervisory period, or such as arise from the want of an intelligent appreciation of the object and character of the Service. When these are explained and understood, the co-operation of the collector and the surgeon is, as a rule, promptly and efficiently given, and the improvement is speedily manifest, although changes in the officers make it necessary from time to time to repeat the instruction.

So much of the time of the Supervising Surgeon is necessarily occupied by office duties that it has not been found practicable to make as frequent or as numerous inspections of the ports as is deemed desirable; and to this want of frequent inspection is due many of the discrepancies which an examination of the appended tables will be found to disclose, as well in the economic as in the professional results at various ports. It is believed that its administration would be greatly facilitated and its economy and efficiency promoted by dividing the Service into geographical districts, each embracing a suitable number of ports under the superintendence of a district medical officer directly responsible to the Supervising Surgeon, and which officer should have, as now, charge of the Service at the principal port of the district, but who should also frequently inspect and report upon the conditions of the Service at the minor ports. In the absence of definite legislative authority for such a measure, it has not been thought advisable to venture beyond such tentative essays as the grouping of the ports into districts—as shown in the medical and surgical statistics—and the occasional assignment of the surgeons in charge of ports to inspection duty where the exigencies and interests of the Service make such assignment clearly imperative. The surgeon in charge of the Service at

Louisville has thus inspected many of the ports on the Ohio, Cumberland, and Mississippi rivers; as have also the surgeons in charge at New York, Norfolk, and New Orleans, of ports in their respective vicinities.

This work is accomplished without interference with usual duties which, in themselves, are of the highest importance, as will be seen by the following statement of results achieved at the port of New York within the past three years :

Comparative Exhibit of the Service at the Port of New York.

[For the three years prior to the reorganization of the Service, and for the three years under Surgeon Heber Smith. *a*]

	During the three years ended—	
	June 30, 1870.	June 30, 1874.
Average yearly cost of the Service.....	\$85,594 00	\$35,927 16
Average per diem cost of relief.....	1 10	89
Average number of seamen relieved	2,071	2,173
Average duration of hospital treatment.....	38.3 days.	22.2 days.

During the past year 38,210 days of relief were furnished to 2,222 seamen, an average of 17.2 days each. The total sum expended was \$35,008 19, a per diem average of 92 cents; but this sum includes, besides all salaries, burials, &c., the expense of establishing a much needed ambulance-service for the port. The collection of hospital-money shows a corresponding improvement, due, also, in great measure, to Surgeon Smith's intelligent and faithful administration.

The following summary statement of the business transacted in the office of the Supervising Surgeon, during the past year, indicates the nature and extent of this branch of his duties:

There were received in the office during the year 1,716 accounts, with 45,332 accompanying vouchers, pertaining to the collection of \$346,676 31 hospital-dues, in 130 customs districts. These were recorded, examined, and corrected when defective by the necessary correspondence, before forwarding to the First Auditor. As provided by the *Regulations*, the chief customs officer at each port makes a monthly summary return of transactions in his district on account of the Marine-Hospital Service. These returns are examined and recorded in this office, and upon the information thus obtained remittances of marine-hospital funds are authorized by the Supervising Surgeon through the Commissioner of Customs. Of these remittances 1,046 were made during the year, and 1,116 accounts, with 31,248 vouchers pertaining to the disbursement of \$400,951 58 of the marine-hospital fund, were received, examined, and perfected before being transmitted to the First Auditor for settlement. The hospital relief furnished involved the fixing of rates of compensation at eighty-three ports, at many of which the rates were decided upon in each individual case, as were

a This officer was assigned to duty as superintending surgeon at the port of New York, in July, 1871; and his salary is included in the cost of the Service here given. It may be added that this illustration of the value of officers appointed solely for professional qualifications and executive ability is typical of the results obtained elsewhere.

also extensions of relief in all cases beyond the limit of time fixed by the *Regulations*. Pertaining to this subject, 23,454 physicians' certificates and hospital permits were examined and acted upon. Requisitions for supplies required by the Government marine-hospitals—including subsistence stores, medicines, instruments, surgical appliances, &c.—to the number of 654, were examined, revised, and authorized. Of official letters, exclusive of the endorsement of remarks direct upon returns and reports, 1,388 were received and 1,791 written in the office. Among other clerical labor, 3,950 reports, including those of a medical and surgical nature, were received and tabulated, and from these and other sources 76 printed pages of statistical matter have been compiled, exhibiting, among other things, the important features of the Service for the year, and of its financial history since A. D. 1798.

THE GOVERNMENT HOSPITALS.

The plans of the new pavilion hospital at San Francisco (published and described in the last annual report) have met with very general approval from hospital experts and from the profession. A suitable site at Mountain Lake, about four miles from the port, was transferred by the War Department, and work begun in June last, and the speedy completion and occupancy of the buildings, which may be expected early in 1875, is looked forward to with interest. The surgeon in charge of the Service at that port is in constant communication with the superintendent of construction, and reports satisfactory progress. Some outlay beyond the first estimate will be made necessary by the change from the site originally selected in order to secure proper drainage, sewerage, and road construction; but the buildings, &c., will, it is believed, be completed for the sum appropriated, \$58,790, which will make this hospital cost only about one-seventh the average amount of other Government hospitals of like capacity.

In accordance with the act of June 22, 1874, the hospital buildings and grounds at Pittsburg, Pennsylvania, have been vacated and turned over to the Supervising Architect for sale, the patients in the meantime, and pending the construction of the new hospital, being cared for in the Pittsburg Infirmary, under the care of the former surgeon in charge of the marine-hospital. By the terms of the act ordering the sale of this establishment, the proceeds of the sale are to be devoted to procuring an eligible and healthfully located site, and the erection thereon of a suitable building for use as a United States marine-hospital, according to designs to be prepared by the Supervising Architect, to the satisfaction of the Supervising Surgeon and approved by the Secretary of the

Treasury; but no action in this latter direction can be taken until the sale is effected.

Experience has so fully demonstrated the unfitness of the old style hospital building, as well as the general inexpediency of maintaining hospitals exclusively for a class which fluctuates so greatly as marine patients do, that the Supervising Surgeon hesitates to recommend any additional outlay on these structures. Extensive repairs are needed on all—the new hospital at Chicago alone excepted—and costly alterations in most, in order to justify their further occupancy; and it is questionable, both on sanitary and economic grounds, if it would not be wiser to tear down or vacate more than one of them. If the recommendation of the Secretary—that Congress authorize the leasing of these buildings—should be acted upon, it is believed that some of the best hospital organizations in the country, embracing the highest professional skill, would apply for the leases. Such organizations, by converting the establishments into general hospitals, and extending and improving them in accordance with modern hospital science, would make them self-supporting, as they cannot be while limited to a class which furnishes, as it does at most ports, only a very few patients.

Maintaining a hospital is like conducting a hotel: neither can be done to the greatest profit or advantage without patrons enough to fully employ the resources of the establishment. A surgeon, sometimes an assistant also, an apothecary, a steward, a matron, a nurse, cooks, laundresses, &c., must be employed whether there be one patient or twenty in the wards; and instances are not wanting where, prior to 1871, a hospital staff has been kept up at the expense of the Government for months at a time without a single patient in the building. At some of these hospitals the Service within the past two years has cost as high as \$2 27 per patient per day, the average cost of the entire Service during the same period being only \$1 per patient per day; and while the average cost of the Service in the eight hospitals maintained exclusively for marine patients was, during the past year, \$1 11 per patient per day, it was only ninety-six cents per patient per day where they were cared for by special arrangement and in private or municipal hospitals. Again, if all patients had been cared for during the last year in Government hospitals, the cost of the Service would have been about \$450,000, and the deficiency about \$100,000, while the cost under the mixed system was \$400,951, and the deficiency \$54,275 27; whereas, if it had been entirely under the special and municipal hospital plan, it would have cost \$387,000, and the deficiency would have been only \$40,000.

It is not meant by this to urge a wholesale and indiscriminate leasing; but only when the best interests, both of the patient and the Service, clearly point to this as the better plan should the property be leased. At any port where the Service is of sufficient magnitude, certainly at such a port as New York, there is no reason why a hospital exclusively for seamen should not be maintained as economically under the auspices of the Government as under municipal authority. In this connection the suggestion of Dr. John S. Billings, of the United States Army Medical Corps, is worthy of careful consideration. This officer recommended the establishment of three, or at most four, National Marine Hospitals—one to be located on the Atlantic coast, one on the Gulf, one on the Pacific, and one on the Great Lakes. To these might be sent all serious cases (fit for transportation) from the ports adjacent to them, so as to keep their wards and organizations always employed. Minor cases, as well as those unfit to bear, or too remote for transportation, would, of course, be treated as now, by local arrangement under the supervision of the Service.

There yet remains so much to be done in the establishment of a compact, economical, and efficient organization; the demands for relief are of such an instant and diverse nature; and the utilization of the potential resources of the Service is even yet so imperfect, that a plan of this character must necessarily be held in abeyance, at least for the present. With the same degree of improvement in the future as in the past three years, and with the receipts of hospital-money correspondingly increased, it may eventually be feasible to secure the benefits which would accrue from such hospitals—to the sailor, in his expert treatment, when sick or disabled, by men, who, in their wards, would have unequalled opportunities for the study and mastery of the special diseases and accidents of sea-life; to the profession and the public at large, which would be the gainers by the lessons and deductions therein obtained; and to the further credit of the Nation for enlightened interest in the welfare of its seamen.^(a)

^a "The second annual report, [of the Supervising Surgeon of the Marine-Hospital Service,] for such it is, demonstrates the judicious efforts made by the United States to care for and encourage seamen. For some years the Great Western Republic has evinced sound wisdom in its advancement of sanitary medicine, and in the recognition of the value of the services of the medical profession as the legitimate machinery for furthering the policy of protecting the health and lives of its citizens. * * * Indeed, with the evident desire to benefit and act well by her seamen, the United States Government is shown not to have failed to protect her mercantile marine service in a manner worthy of a great nation."—[*London Medical Press*, December 2, 1874.] And while this sheet is going through the press, *The Lancet* is recommending the Marine Department of the Board of Trade of the United Kingdom "to take a leaf out of the book" of this Service, concerning which it remarks: "Our transatlantic neighbors, ahead of us in many things, are most decidedly in advance of the old country in providing for the care of their sick sailors."

PREVENTIVE MEDICINE IN THE SERVICE.

While the primary object of the Service as defined by statute is the "relief of sick and disabled seamen," the duty of preventing, in whatever degree, such sickness and disability, is also conceived to be within its scope. Hence, preventive medicine, which is receiving from the profession a continually-increasing amount of attention, has not been lost sight of in its bearing upon the physical welfare of seamen; and the medical officers of the Service have been invited to study and report upon the conditions of sea-life with a view to devising measures for the preservation of the sailor's health and his protection from disease. In response to this invitation a number of valuable and practical papers have been received, discussing such topics as the Hygiene of the Forecastle; Unseaworthy Sailors; Preventable Disease on the Great Lakes; the Cause and Prevention of Disease among River-men; Sailors and their Diseases on the New England Coast; the Freedman and the Service on the Ohio; and others of like nature, the publication of which cannot fail to be of value by pointing out causes of disease and their remedy—the one or two papers of this character in the last Annual Report having awakened an interest which has already resulted in real benefit to the sailor.

Such efforts, while reducing the causes of the demand for hospital relief, should also enure to the benefit of commerce, by making seafaring pursuits less undesirable as well as less destructive of health and life. So long as the average duration of a sailor's life continues to be only twelve years—such low average being largely the result of the food he eats, the clothes he wears, the hole he sleeps in, and the excesses these conditions naturally and inevitably drive him to—so long will continue the cry of "unseaworthy sailors," and so long will there be an inadequate supply even of these. Royal commissions on unseaworthy ships; the revival of a twelfth-century law of the Italian Republics against overloading;^a the abolition of the advance-note system; compulsory apprenticeship on merchant vessels; school-ships for training boys, and kindred measures, may or may not be needed in the interests of the mercantile navies of the world—some, unquestionably, will be productive of good. But not until sound hygienic conditions obtain in the forecastle will be entirely removed the difficulties which exist in the way of securing and keeping as good a standard of physical efficiency among sailors as is now found in other pursuits.

In reviewing the work of the past year there is found much reason for congratulation in what has already been accomplished, as well as

^a History of Merchant Shipping and Ancient Commerce. W. S. Lindsay. Vol. 1, p. 503.

satisfactory assurance of further improvement and increasing usefulness in the future. A great gain to the Service has been made in correcting the widespread impression that, somehow, it was a charity intended to be supported by the Government; and a still greater gain, in removing the grounds for such impression by making its cost to the Government so nearly nominal. It has been sought to restore what is conceived to have been its original character as an agency in the interest of commerce, *through the administration of a trust-fund for the benefit of the contributors thereto*; a class of men whose avocation—indispensable to the national welfare, to civilization itself—in its very nature, debars its followers from the privileges and protection enjoyed by the humblest laborer on shore. It has been sought to hold this fiduciary character of the Service prominently before not only those concerned in its administration, but before the sailor himself, that thereby his contribution to the fund may be promptly and intelligently paid, and his self-respect preserved when he is compelled to seek relief. And it has been sought to import into the transaction of the official business of the Service the same directness and individual responsibility as obtain in private business pursuits.

Its work is attracting attention from abroad, and details of the system have been applied for by foreign governments during the year, with the object of imitating what is, thus far, although in the LXXVIIth year of its existence, still a peculiarly American institution—an institution founded among the earliest of those which grew out of what is ascribed as the prevailing motive which led to the adoption of the Constitution, namely, *To regulate commerce*—to place under the protection of uniform laws those vital agents of commerce, “ship-building, the carrying trade, and the propagation and protection of seamen.”

It is fitting, then, that with the revival of American ship-building and the promised rehabilitation of American commerce, this third factor—the agency specifically charged with the care of the physical condition of American seamen—should also show signs of vitality and progress, and of being worthy its connection with “an interest that represents our distinctive nationality in all climes and upon all seas; an interest that has given more and asked less of the Government than any other of similar magnitude; an interest more essentially American, in the highest and best sense, than any other which falls under the legislative power of the Government.” (*a*)

a Letter of the Hon. J. G. BLAINE, July 3, 1874.

STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE.

FINANCIAL AND ECONOMIC.

2 M H



STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE,

Fiscal Year 1874.

FINANCIAL AND ECONOMIC.

A.—Summary Statement of the Operations of the Service for the Year ended June 30, 1874.

Number of sick and disabled seamen treated in hospital.....	12,605
Number relieved not sent to hospital, (office-relief).....	1,759
Total number furnished relief.....	14,364
Number of days' hospital-relief furnished.....	398,439
Number of days' office-relief furnished.....	2,013
Total days' relief furnished.....	400,452
Average number of patients in hospital each day.....	1,092
Average number of all patients relieved each day.....	1,097
Average number of days' treatment for each hospital patient.....	31.6
Percentage of deaths of hospital patients.....	3.59
Actual total expenditures for the Service during the year.....	\$400,951 58
Per diem cost of each patient, based on total expenditures.....	1 00
Total collections of hospital dues.....	\$346,676 31
Increase of collections over 1873.....	\$10,830 36
Increase of collections over 1872.....	22,975 26
Increase of collections over 1871.....	70,675 79

Hospital relief furnished at 91 ports.
Hospital dues collected at 130 ports.

NOTE.—In the supervision of the marine-hospital accounts in the office of the Supervising Surgeon, it is found practicable to keep each year's transactions separate, and to make each year's financial report complete in itself; hence, the amount of "actual total expenditures" here given embraces the sums actually disbursed on account of the year's service, between July 1, 1873, and June 30, 1874. In the same manner, the amount of hospital dues reported collected covers the actual collections for this year only. These figures, therefore, differ from those given by other offices of the Department, where a vast number of accounts are kept, and which are necessarily made up at earlier dates than this statement. Such accounts may include items of expenditures and of collections which belong to the previous year, and may omit corresponding items belonging to this year, but not audited and entered at the time of making up their statements. This would lead to a discrepancy which, upon comparing the totals for a series of years, is found to be apparent only, and not actual.

B.—*Comparative Economic Exhibits of the Service.*

1. For the last three years prior to its reorganization, as compared with the three years ended June 30, 1874.

	DURING THE THREE YEARS ENDED—	
	June 30, 1870.	June 30, 1874.
Average annual deficiency	\$241, 505 03	\$71, 165 12
Average yearly cost of each patient relieved	\$37 49	\$29 71
Amount defrayed by hospital-money collections	15 83	24 54
Net cost of each patient to the Government	21 66	5 17
Average per diem cost of each patient	\$1 07	\$1 00½
Average days' hospital treatment per patient	35	32½

2. For the years ended June 30, 1871, and June 30, 1874, being respectively the first under the act of reorganization, and the third under the present administration of the Service. (*a*)

	DURING THE YEAR ENDED—	
	June 30, 1871.	June 30, 1874.
Deficiency (<i>b</i>)	\$164, 937 00	\$54, 275 27
Average yearly cost of each patient relieved	\$31 78	\$27 91
Amount defrayed by hospital-money collections	20 21	24 14
Net cost of each patient to the Government	11 57	3 77
Average per diem cost of each patient (<i>c</i>)	\$1 04	\$1 00

a The present administration dates from the appointment of the Supervising Surgeon towards the close of the fiscal year 1871.

b The condition of the Service during the first quarter of the current fiscal year, (1875,) warrants the belief that, with the legislation suggested by the Secretary in his Annual Report, the Service may henceforward be considered self-sustaining; consequently no estimate for a deficiency appropriation for the ensuing fiscal year (1876) is deemed necessary.

c The present per diem cost, it should be observed, covers every item of expenditure, including salaries of all officers and employés, the burial of the dead, &c. In the absence of any data previous to the present administration, it is not known what the former per diem cost included.

C.—Exhibit of Operations of the Service at each Port during the Year ended June 30, 1874.

PORTS.	NUMBER OF PATIENTS.							NO. OF DAYS' RELIEF FURNISHED.			COST.		* Tax collected.
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.	Died.	Remaining under treatment June 30, 1874.	No. of seamen furnished office relief.	Aggregate No. of seamen furnished relief.	Hospital relief.	Office relief.	Total.	Daily per capita cost.	Total.	
Albany, N. Y.		2	2				2	46		46	\$0 80	\$36 80	\$3,068 13
Alexandria, Va.	2	39	40	1		5	46	734	5	739	1 01	749 00	940 89
Alton, Ill.													10 80
Annapolis, Md.													563 39
Apalachicola, Fla.	1	17	14	2	2	2	20	683	3	686	99	682 48	323 73
Astoria, Oregon	2	52	54					1,706		1,706	1 20	2,047 20	253 76
Baltimore, Md.	22	475	470	13	14	2	499	10,775	2	10,777	54	5,777 53	18,888 80
Bangor, Maine.		30	27	3		34	64	1,176	34	1,210	1 23	1,485 21	1,869 07
Bargaintown, N. J.	2		2				2	102		102	1 00	102 00	1,267 76
Barnstable, Mass.	16	207	201	2	20		223	6,618		6,618	1 01	6,732 00	2,971 49
Bath, Maine.	1	18	17	2		4	23	600	4	604	89	540 70	1,787 54
Beaufort, N. C.													609 64
Beaufort, S. C.						1	1		1	1	2 00	2 00	131 95
Belfast, Maine.	1	20	19	1	1	1	22	536	1	537	98	517 00	1,511 46
Boston, Mass.	64	758	745	22	55		822	25,250		25,250	1 14	28,768 13	14,631 09
Bridgeport, Conn.													1,606 14
Bridgetown, N. J.													2,814 86
Bristol, R. I.													134 55
Brownsville, Texas.		5	5				5	180		180	1 00	180 00	531 45
Brunswick, Ga.												28 50	498 57
Buffalo, N. Y.	8	165	141	6	26		173	5,356		5,356	73	3,896 38	5,510 94
Burlington, Iowa													76 89
Burlington, Vt.	1	5	6				6	205		205	51	104 41	308 64
Cairo, Ill.	13	253	240	12	14	5	271	8,542	5	8,547	91	7,812 80	339 75
Cape Vincent, N. Y.		1	1				1	28		28	83	23 20	282 18
Castine, Maine.	2	18	16		4		20	891		891	42	369 90	1,510 79
Cedar Keys, Fla.		2	1	1			2	20		20	3 11	62 50	365 73
Charleston, S. C.	17	154	158	3	10	2	173	4,542	2	4,544	1 00	4,562 00	2,394 61
Chicago, Ill.	44	537	510	16	55	2	583	19,964	2	19,966	1 21	24,219 54	8,214 56
Cincinnati, Ohio.	39	559	537	12	49	10	608	19,572	10	19,582	72	14,061 66	7,072 85
Cleveland, Ohio.	15	235	228	4	18		250	6,723		6,723	1 22	8,179 31	3,955 39
Coos Bay, Oregon.													181 57
Corpus Christi, Texas.													253 41
Crisfield, Md.												17 00	6,973 46
Detroit, Mich.	30	268	272	10	16		298	7,719		7,719	1 19	9,171 44	6,145 74
Dubuque, Iowa.	6	49	47	1	7		55	1,271		1,271	1 21	1,533 34	292 35
Du Luth, Minn.		2	2				2	36		36	1 70	61 20	110 99
Dunkirk, N. Y.													45 96
Eastport, Maine.	1	15	16				16	385		385	90	347 50	2,319 10
Eastville, Va.													2,163 63
Edenton, N. C.													597 69
Edgartown, Mass.	8	83	73	4	14	3	94	5,246	3	5,249	87	4,571 56	462 40
Ellsworth, Maine.	6	37	39	2	2		43	1,909		1,909	62	1,182 65	1,742 90
Erie, Pa.		1	1				1	35		35	2 89	101 25	1,762 32
Evansville, Ind.	15	219	222	4	8		234	4,840		4,840	71	3,452 85	2,219 90
Fall River, Mass.													2,080 43
Fernandina, Fla.		18	18				18	391		391	1 82	713 00	461 45
Franklin, La.													870 06
Galena, Ill.													826 52
Galveston, Texas.	20	521	504	17	20	9	550	14,482	9	14,491	99	14,330 00	3,423 83
Georgetown, D. C.	2	79	68	2	11	4	85	2,553	6	2,559	1 34	3,443 97	1,681 51
Georgetown, S. C.												13 00	333 83
Gloucester, Mass.												2 00	1,277 43
Grand Haven, Mich.													1,620 09
Indianola, Texas.		13	12		1	1	14	429	1	430	1 50	644 50	532 82
Jacksonville, Fla.	4	80	80	1	3	3	87	2,133	3	2,136	1 47	3,135 50	1,507 08
Kennebunk, Maine.													68 80
Key West, Fla.	2	183	149	12	24	104	289	5,203	127	5,330	1 20	6,394 92	2,528 61
La Crosse, Wis.		2	2				2	38		38	1 00	38 00	315 48
Lamberton, N. J.													490 16
Louisville, Ky.	58	436	444	21	29	191	685	20,811	204	21,015	1 00	21,090 11	1,660 64
Machias, Maine.	1	16	16		1		17	672		672	76	510 30	1,390 45
Marblehead, Mass.													128 54
Marquette, Mich.		22	22				22	646		646	1 27	821 50	591 73
Memphis, Tenn.	4	192	180	10	6		196	3,654		3,654	1 07	3,921 50	1,758 36
Middletown, Conn.		9	6	1	2		9	398		398	68	270 90	2,363 21

C.—Exhibit of Operations of the Service, &c.—Continued.

PORTS.	NUMBER OF PATIENTS.						NO. OF DAYS' RELIEF FURNISHED.			COST.			
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.	Died.	Remaining under treatment June 30, 1874.	No. of seamen furnished office relief.	Aggregate No. of seamen furnished relief.	Hospital relief.	Office relief.	Total.	Daily per capita cost.	Total.	Tax collected.
Milwaukee, Wis.....	11	139	118	9	23		150	4,774		4,774	\$0 75	\$3,596 77	\$4,435 99
Mobile, Ala.....	33	296	282	8	39		329	20,116		20,116	75	15,135 00	2,525 86
Nantucket, Mass.....													87 31
Nashville, Tenn.....	12	28	38	2			40	1,819		1,819	88	1,602 90	666 95
Natchez, Miss.....												6 75	56 00
Newark, N. J.....													1,154 27
New Bedford, Mass.....		24	22	2			24	709		709	1 00	709 00	1,294 23
New Berne, N. C.....	1	18	17	1	1		19	305		305	2 50	763 54	1,022 49
Newburyport, Mass.....	1			1			1	8		8	2 87	23 00	237 27
New Haven, Conn.....	3	48	46	2	3		51	1,489		1,489	1 00	1,497 00	2,275 82
New London, Conn.....		8	7		1	20	28	289	20	309	67	208 50	1,429 12
New Orleans, La.....	47	516	464	62	37	272	835	20,154	272	20,651	1 15	23,733 98	19,353 13
Newport, R. I.....		3	3			4	7	129	4	133	75	99 35	1,302 54
New York, N. Y.....	74	1,282	1,189	64	103	866	2,222	37,150	1,060	38,210	92	35,008 19	56,297 25
Niagara, N. Y.....													184 82
Norfolk, Va.....	35	293	303	10	15	58	386	14,429	59	14,488	1 06	15,401 15	4,361 46
Ogdensburg, N. Y.....	1	3	3	1			4	205		205	73	149 06	383 80
Omaha, Neb.....													550 12
Oswego, N. Y.....	1	14	15		3		18	275	3	278	2 80	778 00	1,567 82
Paducah, Ky.....						2	2		2	2	1 00	2 00	476 41
Parkersburg, W. Va.....													1,198 81
Pembina, Minn.....		3	1		2		3	23		23	1 00	23 00	1,042 03
Pensacola, Fla.....	9	192	180	13	8	1	202	6,244	1	6,245	1 00	6,254 00	1,247 96
Perth Amboy, N. J.....													2,917 24
Petersburg, Va.....													209 41
Philadelphia, Pa.....	40	533	522	13	38		573	15,348		15,348	1 09	16,663 11	19,907 22
Pittsburg, Pa.....	11	192	181	3	19		203	6,049		6,049	1 10	6,657 33	4,908 93
Plattsburg, N. Y.....		2	2				2	51		51	66	33 85	506 91
Plymouth, Mass.....													101 52
Port Huron, Mich.....												17 90	3,061 84
Portland, Maine.....	8	159	150	5	12		167	4,387		4,387	1 25	5,476 40	3,495 08
Portland, Oregon.....													2,249 01
Portsmouth, N. H.....	1	6	7				7	254		254	1 18	299 62	501 24
Port Townsend, W. T.....	20	198	203	4	11	4	222	8,514	4	8,518	1 00	8,527 00	3,405 55
Providence, R. I.....	13	115	117	2	9	2	130	3,437	2	3,439	1 15	3,945 88	2,107 83
Quincy, Ill.....													178 80
Richmond, Va.....	3	25	26	1	1		28	662		662	92	608 50	552 41
Rochester, N. Y.....													150 77
Saco, Maine.....													129 90
Sag Harbor, N. Y.....		4	3		1		4	160		160	78	124 70	895 25
St. Augustine, Fla.....													40 20
St. Josephs, Mo.....													111 60
St. Louis, Mo.....	48	646	638	22	34		694	17,029		17,029	83	14,100 98	10,841 07
St. Mary's, Ga.....													252 06
St. Paul, Minn.....	5	22	20	1	6		27	1,111		1,111	96	1,064 45	(a)
Salem, Mass.....													426 22
San Diego, Cal.....													514 92
Sandusky, Ohio.....												1 00	1,237 81
San Francisco, Cal.....	46	516	489	20	53	139	701	21,392	159	21,551	1 07	23,056 85	30,811 25
Savannah, Ga.....	14	255	248	5	16	7	276	8,547	7	8,554	1 00	8,602 00	3,703 54
Shreveport, La.....	15	92	93	8	6		107	2,942		2,942	1 53	4,493 00	(b)
Shieldsboro', Miss.....													1,510 88
Sitka, Alaska.....		2	2				2	70		70	1 46	102 00	261 36
Stonington, Conn.....													673 29
Tappahannock, Va.....		1	1				1	51		51	50	25 50	675 27
Toledo, Ohio.....												12 00	727 11
Town Creek, Md.....													198 88
Tuckerton, N. J.....	1	53	45		9		54	1,998		1,998	1 20	2,397 60	696 57
Vicksburg, Miss.....	6	122	119	3	6		128	4,335		4,335	1 01	4,359 00	741 90
Waldoboro', Maine.....	6	48	45	5	4		54	2,439		2,439	51	1,238 50	3,385 50
Wheeling, W. Va.....	4	22	24		2		26	1,165		1,165	97	1,130 05	1,306 45
Wilmington, Del.....												19 00	2,174 22
Wilmington, N. C.....	2	48	44	1	5		50	2,644		2,644	1 00	2,654 00	1,109 27
Wiscasset, Maine.....	2	1	2		1		3	676		676	62	422 10	364 25
York, Maine.....													64 00
Yorktown, Va.....													788 47

a Included in returns from Pembina.

b Included in returns from New Orleans.

D.—Statement of Annual Collections, Appropriations, and Expenditures on account of the Service from October 1, 1798, to June 30, 1874.

[The act of May 3, 1802, (2 Stat., 192,) provides that all hospital money collected shall be paid into the Treasury; and from June 30, 1802, when this provision went into effect, this statement is by warrants; prior to that date the statement is made from collectors' accounts.]

Year.	Collections.	Appropriations.	Available.	Expenditures.
1798 } 1801 }	<i>a</i> \$141, 690 25	.....	\$141, 699 25	<i>b</i> \$74, 636 51
1802..... {	<i>c</i> 47, 635 09	.....	47, 635 09	38, 500 74
1803..... {	33, 766 47	.....	33, 766 47	250 00
1804.....	54, 933 21	.....	54, 933 21	31, 087 36
1805.....	58, 210 98	\$1, 000 00	59, 210 98	<i>d e</i> 84, 027 50
1806.....	57, 928 20	.....	57, 928 20	59, 828 41
1807.....	66, 820 01	.....	66, 820 01	<i>f</i> 53, 281 98
1808.....	61, 474 47	.....	61, 474 47	65, 571 51
1809.....	36, 515 44	.....	36, 515 44	60, 383 16
1810.....	<i>g</i> 74, 192 42	.....	74, 192 42	70, 901 75
1811.....	53, 715 20	.....	53, 715 20	36, 793 60
1812.....	54, 586 34	.....	54, 586 34	57, 109 08
1813.....	42, 421 46	.....	42, 421 46	<i>h</i> 57, 723 11
1814.....	21, 789 58	20, 000 00	41, 789 58	53, 376 87
1815.....	10, 191 97	20, 000 00	30, 191 97	45, 226 50
1816.....	28, 374 74	20, 000 00	48, 374 74	43, 651 55
1817.....	43, 864 21	.....	43, 864 21	<i>i</i> 82, 555 68
1818.....	48, 081 88	.....	48, 081 88	<i>j</i> 81, 749 28
1819.....	46, 911 27	.....	46, 911 27	87, 230 62
1820.....	50, 405 84	.....	50, 405 84	84, 097 61
1821.....	48, 765 01	81, 319 34	130, 084 35	87, 217 39
1822.....	48, 569 99	50, 000 00	98, 569 99	66, 845 48
1823.....	51, 923 72	30, 000 00	81, 923 72	44, 324 61
1824.....	53, 062 91	.....	53, 062 91	44, 761 13
1825.....	51, 877 52	<i>k</i> 12, 875 00	64, 752 52	47, 861 77
1826.....	56, 992 39	.....	56, 992 39	<i>l</i> 54, 938 51
1827.....	58, 133 10	.....	58, 133 10	51, 236 98
1828.....	58, 233 67	.....	58, 233 67	<i>m</i> 89, 137 42
1829.....	56, 217 27	.....	56, 217 27	69, 259 61
1830.....	58, 361 34	.....	58, 361 34	63, 562 28
1831.....	57, 447 13	.....	57, 447 13	68, 996 96
1832.....	59, 182 17	.....	59, 182 17	65, 563 98
1833.....	58, 942 56	.....	58, 942 56	76, 877 87
1834.....	62, 901 15	15, 750 00	78, 651 15	68, 948 73
1835.....	64, 532 98	.....	64, 532 98	74, 668 96
1836.....	66, 621 77	25, 000 00	91, 621 77	86, 268 43
1837.....	67, 961 02	15, 000 00	82, 961 02	89, 370 70
1838.....	27, 021 24	175, 000 00	202, 021 24	97, 935 75
1839.....	35, 234 52	.....	35, 234 52	109, 229 59
1840.....	66, 311 83	.....	66, 311 83	121, 653 31
1841.....	71, 675 91	.....	71, 675 91	130, 561 07
1842.....	72, 760 20	97, 000 00	169, 760 20	109, 758 82
1843.....	72, 429 36	46, 500 00	118, 929 36	100, 112 57
1843, (half year).....	37, 417 18	58, 500 00	95, 917 18	49, 430 86
1844.....	85, 864 42	25, 000 00	110, 864 42	62, 148 67
1845.....	88, 074 34	25, 000 00	113, 074 34	168, 016 20
1846.....	90, 675 68	.....	90, 675 68	68, 678 70
1847.....	95, 216 73	25, 000 00	120, 216 73	123, 257 42
1848.....	97, 989 26	12, 000 00	109, 989 26	140, 995 50
1849.....	103, 496 38	12, 000 00	115, 496 38	103, 167 65
1850.....	106, 437 49	15, 000 00	121, 437 49	162, 379 67
1851.....	133, 447 07	200, 000 00	333, 447 07	139, 220 43
1852.....	134, 393 26	200, 000 00	334, 393 26	203, 115 23
1853.....	133, 718 08	100, 000 00	233, 718 08	280, 750 10
1854.....	146, 576 31	.....	146, 576 31	292, 825 69
1855.....	148, 733 43	200, 000 00	348, 733 43	345, 987 46
1856.....	155, 068 14	150, 000 00	305, 068 14	368, 520 86
1857.....	167, 325 29	250, 000 00	417, 325 29	354, 053 90

a Includes \$15, 635 33 hospital money received from the Navy Department.

b Includes \$6, 185 33 for purchase of Norfolk hospital.

c Includes \$2, 500 hospital money received from the Navy Department.

d Includes \$14, 842 34, cost of Charlestown hospital, at the port of Boston.

e Includes \$157 66 carried to surplus fund.

f Includes \$379 66 carried to surplus fund.

g Includes \$38, 515 96 hospital fund received from Navy Department.

h Includes 1 cent carried to surplus fund.

i Includes \$6, 500 expended for repairs of Norfolk hospital.

j Includes \$5, 500, cost of site of Charleston (S. C.) hospital.

k Received from sale of hospital at Charlestown, Mass.

l Includes \$4, 068, cost of site, &c., for marine hospital at Chelsea, Mass.

m Includes \$27,603 39, cost of Chelsea hospital.

D.—Statement of Annual Collections, Appropriations, and Expenditures—Continued.

Years.	Collections.	Appropriations.	Available.	Expenditures.
1858.....	\$164,161 82	\$150,000 00	\$314,161 82	\$379,214 86
1859.....	178,195 59	150,000 00	328,195 59	349,890 36
1860.....	173,073 09	275,000 00	448,073 09	455,593 10
1861.....	155,172 43	175,000 00	330,172 43	308,918 13
1862.....	128,526 97	200,000 00	328,526 97	290,447 41
1863.....	118,307 74	200,000 00	318,307 74	198,933 60
1864.....	117,824 05	100,000 00	217,824 05	260,911 84
1865.....	128,656 30	150,000 00	278,656 30	348,472 82
1866.....	142,292 81	170,000 00	312,292 81	<i>a</i> 335,958 39
1867.....	231,596 91	200,000 00	431,596 91	<i>a</i> 415,580 53
1868.....	184,530 35	250,000 00	434,530 35	<i>a</i> 443,646 53
1869.....	176,957 95	200,000 00	376,957 95	<i>a</i> 391,296 89
1870.....	168,153 70	200,000 00	368,153 70	<i>a</i> 353,277 54
1871.....	293,592 14	250,000 00	543,592 14	<i>a</i> 437,493 86
1872.....	319,823 16	<i>b</i> 154,050 00	473,873 16	421,897 03
1873.....	333,003 03	125,000 00	458,003 03	398,778 69
1874.....	352,379 98	100,000 00	452,379 98	409,039 04

a The expenditures from 1866 to 1871, as represented in this statement, are less than the actual expenditures for those years by \$91,250 11, in consequence of various sums, aggregating that amount, received on account of sales of marine hospitals, having been credited as repayments.

b Includes \$4,050, being a part of the proceeds from the sale of the marine hospital at Vicksburg, Miss., sold by authority of the act of April 20, 1866.

E.—*Tabular Record of United States Marine-Hospital Buildings from A. D. 1800 to close of Fiscal Year 1874.*

Location.	Purchased or commenced.	Occupied.	Amount expended in 1874.	Cost to date.	Condition or disposition.	Proceeds of sales.
Norfolk, Va.	1800			\$22,395 10	Sold, 1869	\$15,613 80
Newport, R. I.					(a)	
Boston.....	1802	1804		14,842 34	Sold, 1824	12,875 00
	2	1825		32,168 06	Sold, 1867	54,803 38
	3	{ about 1860 }	\$376 96	394,424 99	In use.....	
Charleston, S. C.	1815	{ 1834 }		26,685 77	Sold, 1866	9,500 00
	1832					
New Orleans.. { 1	1837	1849?		122,772 70	Sold, 1866 (b)	
	2			530,090 84	Unfinished (c)	
Mobile, Ala.	d 1838	1843		55,339 71	Leased for seamen.	
Pittsburg, Pa.	1842	1851		72,554 57	Closed	e 20,550 96
Louisville, Ky.	f 1843	1852		98,452 47	Leased for seamen.	
Cleveland, Ohio	f 1844	1852	3,429 19	122,721 03	In use.....	
Natchez, Miss.	f 1845	1852		66,750 00	(g)	
Key West, Fla.	1844	1845	244 02	34,418 86	In use	
Ocracoke, N. C.	1843	1847		9,227 07	Abandoned (h)	
Paducah, Ky.	1842	1852		58,525 77	Burned, 1868	i 6,571 34
Napoleon, Ark.	f 1842	1855		62,290 83	Destroyed, 1868 (j).	30 00
Chicago..... { 1	k 1849	1852		64,070 98	Sold, 1864	132,000 00
	2	1867		421,755 82	In use.....	
Saint Louis, Mo.	l 1850	1858	6,111 98	115,414 10	In use.....	
San Francisco, Cal. { 1	m 1851	1854		231,871 10	In ruins.....	
	2	n 1874			Unfinished.	
Evansville, Ind.	1853?	1856		59,899 02	Sold, 1867	10,507 11
Portland, Maine.	1852	1859	12 00	122,837 13	In use.....	
Vicksburg, Miss.	1853	1856		67,775 16	Sold, 1870	20,257 52
Pensacola, Fla.	(o).....			1,052 96		
Detroit, Mich.	1855	1857	113 01	109,100 99	In use.....	
Cincinnati, Ohio.	1856	(p)		182,665 48	Sold, 1866	70,500 00
Burlington, Iowa.	1856	1858		29,996 84	Sold, 1867	6,000 00
Saint Mark's, Fla.		1859		25,758 00	Transferr'd, 1867 (g)	
Burlington, Vt.	1855	(p)		39,572 30	Sold, 1866	7,164 41
Wilmington, N. C.	1857	(r)		43,897 44	Sold, 1870	4,020 00
Galena, Ill.	1857	1861		48,797 58	Sold, 1868	6,321 08
Port Angeles, Wash. Ter	(s).....				Sold, 1868	165 00
Totals.....			10,287 16	3,288,125 01		376,879 60

a Reported by the Secretary of the Treasury, February 16, 1802, to have been discontinued. No other record found.

b Reported as sold in 1866 for \$300, but the amount does not appear to have been received.

c Completion of the hospital building impracticable. Ordered sold; act March 3, 1873.

d First site selected in 1837. Abandoned on account of defective title.

e This amount is from sale of a portion of hospital grounds in 1870. The building is now closed, awaiting sale under act of June 22, 1874.

f Sites selected by the medical board of the Army in 1837.

g Building injured by a hurricane in 1873, so as to be unfit for use; not required for a marine hospital.

h Unoccupied and not required.

i From sale of land.

j Building and grounds washed away by the river.

k Site ceded by War Department. Hospital burned, October 10, 1871, before the property was delivered.

l Site ceded by War Department.

m Site set apart from Government land. Hospital injured by an earthquake in 1868, and abandoned.

n Site ceded by War Department. Work begun June, 1874.

o Work not commenced. Expenditures made from 1855 to 1858.

p Never occupied as a marine hospital.

q Transferred to the War Department.

r Never occupied as a marine hospital. Sold for \$20,100, to be paid in five equal instalments—only one received up to date.

s No record of the establishment of a marine hospital at Port Angeles, Wash. Ter., has been found.

STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE.

MEDICAL AND SURGICAL.

STATISTICS

UNITED STATES MARINE-HOSPITAL SERVICE, Fiscal Year 1874.

MEDICAL AND SURGICAL.

I.—*Table of Hospital-Relief Districts.*

[For convenience of administration, the Service is divided into nine (9) Geographical Districts, as follows:]

I. DISTRICT OF NEW ENGLAND—embracing the ports of

Bangor, Maine.	Ellsworth, Maine.	<i>b</i> Plymouth, Mass.
Barnstable, Mass.	<i>b</i> Fall River, Mass.	<i>a</i> Portland, Maine.
Bath, Maine.	Gloucester, Mass.	Portsmouth, N. H.
Belfast, Maine.	<i>b</i> Kennebunk, Maine.	<i>b</i> Saco, Maine.
<i>a</i> Boston, Mass.	Machias, Maine.	<i>b</i> Salem, Mass.
Burlington, Vt.	<i>b</i> Marblehead, Mass.	Waldoboro', Maine.
Castine, Maine.	<i>b</i> Nantucket, Mass.	Wiscasset, Maine.
Eastport, Maine.	New Bedford, Mass.	<i>b</i> York, Maine.
Edgartown, Mass.	Newburyport, Mass.	

II. NORTHERN ATLANTIC DISTRICT—embracing the ports of

Albany, N. Y.	<i>b</i> Newark, N. J.	<i>b</i> Perth Amboy, N. J.
Bargaintown, N. J.	New Haven, Conn.	Plattsburg, N. Y.
<i>b</i> Bridgeport, Conn.	New London, Conn.	Providence, R. I.
<i>b</i> Bridgetown, N. J.	Newport, R. I.	<i>b</i> Rochester, N. Y.
<i>b</i> Bristol, R. I.	New York, N. Y.	Sag Harbor, N. Y.
Cape Vincent, N. Y.	Ogdensburg, N. Y.	<i>b</i> Stonington, Conn.
<i>b</i> Lambertton, N. J.	Oswego, N. Y.	Tuckerton, N. J.
Middletown, Conn.		

III. MIDDLE ATLANTIC DISTRICT—embracing the ports of

Alexandria, Va.	Georgetown, D. C.	Richmond, Va.
<i>b</i> Annapolis, Md.	Norfolk, Va.	Tappahannock, Va.
Baltimore, Md.	<i>b</i> Petersburg, Va.	<i>b</i> Town Creek, Md.
Crisfield, Md.	Philadelphia, Pa.	Wilmington, Del.
<i>b</i> Eastville, Va.	Pittsburg, Pa.	<i>b</i> Yorktown, Va.

IV. SOUTHERN ATLANTIC DISTRICT—embracing the ports of

Beaufort, N. C.	Fernandina, Fla.	<i>b</i> St. Augustine, Fla.
Beaufort, S. C.	Georgetown, S. C.	<i>b</i> St. Mary's, Ga.
Brunswick, Ga.	Jacksonville, Fla.	Savannah, Ga.
Charleston, S. C.	<i>a</i> Key West, Fla.	Wilmington, N. C.
<i>b</i> Edenton, N. C.	New Berne, N. C.	

a At these ports relief is furnished in hospitals owned by the Government and maintained exclusively for seamen.

b At these ports hospital dues only were collected, no application for relief having been received at them during the year.

I.—*Table of Hospital-Relief Districts—Continued.*

V. DISTRICT OF THE GULF—embracing the ports of

Apalachicola, Fla.	Galveston, Texas.	Pensacola, Fla.
Brownsville, Texas.	Indianola, Texas.	<i>b</i> Shieldsboro', Miss.
Cedar Keys, Fla.	Mobile, Ala.	Shreveport, La.
<i>b</i> Corpus Christi, Texas.	Natchez, Miss.	Vicksburg, Miss.
<i>b</i> Franklin, La.	New Orleans, La.	

VI. DISTRICT OF THE PACIFIC—embracing the ports of

Astoria, Oregon.	Port Townsend, W. T.	San Francisco, Cal.
<i>b</i> Coos Bay, Oregon.	<i>b</i> San Diego, Cal.	Sitka, Alaska.
<i>b</i> Portland, Oregon.		

VII. DISTRICT OF THE GREAT LAKES—embracing the ports of

Buffalo, N. Y.	Dunkirk, N. Y.	<i>b</i> Niagara, N. Y.
<i>a</i> Chicago, Ill.	Erie, Pa.	Port Huron, Mich.
<i>a</i> Cleveland, Ohio.	<i>b</i> Grand Haven, Mich.	Sandusky, Ohio.
<i>a</i> Detroit, Mich.	Marquette, Mich.	Toledo, Ohio.
Du Luth, Minn.	Milwaukee, Wis.	

VIII. DISTRICT OF THE OHIO—embracing the ports of

Cincinnati, Ohio.	Memphis, Tenn.	<i>b</i> Parkersburg, W. Va.
Evansville, Ind.	Nashville, Tenn.	Wheeling, W. Va.
Louisville, Ky.	Paducah, Ky.	

IX. DISTRICT OF THE MISSISSIPPI—embracing the ports of

<i>b</i> Alton, Ill.	La Crosse, Wis.	<i>b</i> St. Joseph, Mo.
Cairo, Ill.	<i>b</i> Omaha, Nebraska.	<i>a</i> St. Louis, Mo.
Dubuque, Iowa.	Pembina, Minn.	St. Paul, Minn.
<i>b</i> Galena, Ill.	<i>b</i> Quincy, Ill.	

a At these ports relief is furnished in hospitals owned by the Government and maintained exclusively for seamen.

b At these ports hospital dues only were collected, no application for relief having been received at them during the year.

II.—*Statement, by Districts, of the Number of Patients treated each Month during the Year ended June 30, 1874.*

District.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Total.....	1,854	2,023	2,256	2,176	2,093	2,265	2,232	2,056	1,839	1,653	1,754	1,831
New England	272	268	275	287	265	288	270	230	204	180	216	208
Northern Atlantic.....	231	248	280	256	234	261	235	228	237	219	241	282
Middle Atlantic.....	232	265	302	279	293	320	319	291	253	247	256	221
Southern Atlantic.....	70	78	88	145	129	152	184	169	143	104	93	115
The Gulf.....	268	328	366	412	365	367	376	337	297	246	241	227
The Pacific.....	109	130	149	141	154	190	173	168	159	129	124	142
The Great Lakes.....	261	271	305	254	261	229	203	197	152	141	222	276
The Ohio.....	239	243	260	229	223	305	322	305	252	257	232	223
The Mississippi.....	172	192	231	173	169	153	150	131	142	130	129	137

III.—*Ratio of Patients treated in each District.*

District.	Per cent. of total patients.	District.	Per cent. of total patients.
New England	12. 41	The Pacific.....	6. 63
Northern Atlantic.....	13. 01	The Great Lakes.....	11. 72
Middle Atlantic.....	13. 88	The Ohio.....	12. 60
Southern Atlantic.....	6. 31	The Mississippi.....	8. 31
The Gulf.....	15. 13		

IV.—*Average Duration of Treatment (in Hospital) in each District.*

District.	Average duration.	District.	Average duration.
	<i>Days.</i>		<i>Days.</i>
New England	33. 22	The Great Lakes.....	30. 64
Northern Atlantic.....	27. 90	The Ohio.....	32. 65
Middle Atlantic.....	28. 88	The Mississippi.....	26. 75
Southern Atlantic.....	29. 86		
The Gulf.....	36. 49		
The Pacific.....	37. 90	General average.....	31. 58

V.—Tabular Statement, by Months and Districts, of Diseases

[Diseases marked with an asterisk are not specified as fully as is desirable. This is due in great measure of the Medical Officers of the Service not having been

[GRAND TOTAL OF ALL DISEASES.....11, 545.

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.												
	1873.						1874.						
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
General Diseases.													
SECTION A.													
Total cases.....	3,022	250	407	606	447	242	161	125	85	105	112	150	210
<i>Small-pox</i>	2		1		1	4	2	3	3	2	1	4	
Total cases.....	25												
District of New England.....							1		1				
Northern Atlantic District.....						1							
Middle Atlantic District.....									1				
Southern Atlantic District.....			1				1	1			1	3	
District of the Gulf.....	2				1	2		2	1	2		1	
District of the Pacific.....						1			1				
District of the Ohio.....													
<i>Chicken-pox</i>		1							1			1	
Total cases.....	3												
Northern Atlantic District.....									1				
District of the Gulf.....												1	
District of the Ohio.....		1											
<i>Measles</i>		1	1		2	2	3		3	4		1	
Total cases.....	18												
District of New England.....			1		1	1	2		1	2			
Northern Atlantic District.....										1		1	
Middle Atlantic District.....						1							
District of the Pacific.....									1				
District of the Ohio.....		1					1		1				
District of the Mississippi.....					1					1			
<i>Scarlet Fever</i>				1									
Total cases.....	2												
District of New England.....													
Northern Atlantic District.....				1									
<i>Dengue</i>			8	21	5	2	1						
Total cases.....	37												
District of the Gulf.....			8	21	5	2	1						
<i>Typhus Fever</i>			1	1			1	1					
Total cases.....	4												
District of New England.....			1	1									
Middle Atlantic District.....								1					
District of the Great Lakes.....							1						
<i>Cerebro-spinal Fever</i>	2		1			1	4		1	1			
Total cases.....	12												
Middle Atlantic District.....	1		1						1				
Southern Atlantic District.....						1	4			1			
District of the Gulf.....	1												
<i>Enteric Fever</i>	15	25	21	17	21	6	4	3	6	5	11	16	
Total cases.....	168												
District of New England.....	6	14	12	10	4		1		2		6	9	
Northern Atlantic District.....	7	5	4	2	3	2		1	2		1	4	
Middle Atlantic District.....		1	1		7				1		2	2	
Southern Atlantic District.....			1	1		1		1	1	1			
District of the Gulf.....				1		1	1			1			
District of the Pacific.....				1		1							
District of the Great Lakes.....	1	4	3	2	5			1			1		
District of the Ohio.....	1	1			2		2			3	1		
District of the Mississippi.....						1						1	

and Injuries treated during the Year ended June 30, 1874.

ure to the absence of a uniform nosological standard, the *Nomenclature of Diseases* prepared for the issued until the commencement of the present fiscal year.]

GRAND TOTAL OF ALL INJURIES.....1,500.]

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
372	565	212	799	553	378	314	226	208	177	250	300	General Diseases.
												SECTION A.
												Total cases.....3,022
4	1	1	1	1	4	5	7	6	6	3	6	<i>Small-pox:</i>
						1	1					Total cases.....25
					1			1	1			District of New England.
										1	4	Northern Atlantic District.
		1	1			1	2	1				Middle Atlantic District.
3	1			1	2	2	3	2	4	2	2	Southern Atlantic District.
					1	1	1	2	1			District of the Gulf.
1												District of the Pacific.
												District of the Ohio.
	1	1						1			1	<i>Chicken-pox:</i>
								1				Total cases.....3
											1	Northern Atlantic District.
	1	1										District of the Gulf.
												District of the Ohio.
1	1	1		2	3	5	4	5	4	1	2	<i>Measles:</i>
		1		1	1	3	2	2	2	1	1	Total cases.....18
1					1	1	1		1		1	District of New England.
						1	1	1				Northern Atlantic District.
												Middle Atlantic District.
								1				District of the Pacific.
	1				1	1	1	2				District of the Ohio.
				1	1				1			District of the Mississippi.
1			1	1								<i>Scarlet Fever:</i>
1												Total cases.....2
			1	1								District of New England.
												Northern Atlantic District.
		8	25	16	8	1						<i>Dengue:</i>
		8	25	16	8	1						Total cases.....37
												District of the Gulf.
		1	2	1		1	1	1				<i>Typhus Fever:</i>
		1	2	1								Total cases.....4
							1	1				District of New England.
												Middle Atlantic District.
						1						District of the Great Lakes.
4	1	1			1	5	2	1	1	1	1	<i>Cerebro-spinal Fever:</i>
2		1						1				Total cases.....12
2	1				1	5	2		1	1	1	Middle Atlantic District.
												Southern Atlantic District.
33	40	49	37	41	30	21	20	16	12	16	28	District of the Gulf.
18	24	27	23	17	9	6	6	4	2	8	17	District of the Pacific.
8	8	11	3	4	5	4	3	2	1	1	5	District of the Great Lakes.
	1	2	1	8	3	1	1	2	2	2	2	District of the Ohio.
		1	2	1	2	1	1	2	2	1		District of the Mississippi.
1			1	1	1	2	2	1	1	1		
			1	1	2							
2	5	6	6	8	5	3	3	3	1	1	1	
3	1	1	1	2	2	4	4	2	3	2	2	
1	1	1	1		1						1	

V.—*Tabular Statement, by Months and Districts, of Diseases and*

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION A—Continued.												
<i>Diphtheria</i>		1				1	2		1	1	1	
Total cases.....	7											
Northern Atlantic District.....						1						
Middle Atlantic District.....		1										
Southern Atlantic District.....							2			1	1	
District of the Ohio.....									1			
<i>Mumps</i>					1			1	1	1	1	3
Total cases.....	9											
District of New England.....												1
Middle Atlantic District.....								1		1	1	1
District of the Gulf.....					1				1			
District of the Pacific.....												1
<i>Influenza</i>								2		2		1
Total cases.....	5											
Southern Atlantic District.....								2				1
District of the Gulf.....										1		
<i>Erysipelas</i>	8	3	4	4	11	11	6	12	12	11	3	10
Total cases.....	105											
District of New England.....	3				2	4				1		2
Northern Atlantic District.....		1		1				3	4			1
Middle Atlantic District.....			2	1	3	4	3	1	1	6	1	1
Southern Atlantic District.....						2	1	2			1	2
District of the Gulf.....	3		1			1		4	2			1
District of the Pacific.....					1				1			
District of the Great Lakes.....		2	1	1	3	1			1	3		2
District of the Ohio.....	1			1		1	1	2	3	1		1
District of the Mississippi.....	1				2		1				1	
<i>Pyæmia</i>		1						1			1	
Total cases.....	3											
Northern Atlantic District.....		1										
Middle Atlantic District.....								1			1	
SECTION B.												
Total cases.....	3,601	269	257	246	281	311	345	276	252	248	258	260
<i>Rheumatism</i> *.....	70	81	67	80	102	110	92	81	74	84	91	97
Total cases.....	1,128											
District of New England.....	9	11	8	13	12	11	13	6	7	8	13	10
Northern Atlantic District.....	9	13	3	7	12	15	11	12	18	14	18	18
Middle Atlantic District.....	10	11	13	14	19	22	13	9	9	15	14	23
Southern Atlantic District.....	1	3	2	6	4	5	11	7	6	6	10	7
District of the Gulf.....	9	6	7	8	16	20	15	8	12	8	8	4
District of the Pacific.....	3	14	8	9	6	13	6	9	6	5	8	7
District of the Great Lakes.....	12	10	12	9	14	15	6	10	3	8	11	18
District of the Ohio.....	9	10	9	7	11	14	12	12	10	10	5	5
District of the Mississippi.....	8	3	5	7	8	5	5	8	3	10	4	5
<i>Gout</i>		1			1	2	1	1			1	
Total cases.....	7											
Northern Atlantic District.....						1						
District of the Pacific.....		1			1		1	1			1	
District of the Mississippi.....						1						
<i>Syphilis</i> *.....	167	140	141	155	162	184	144	128	134	126	126	143
Total cases.....	1,916											
District of New England.....	12	8	13	24	19	18	10	7	5	12	8	8
Northern Atlantic District.....	31	18	22	18	15	23	19	10	24	13	22	34
Middle Atlantic District.....	29	21	23	32	32	40	24	19	25	22	23	14
Southern Atlantic District.....	2	5	9	5	9	19	18	14	6	4	7	5

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	1				1	3		1	2	2		General Diseases. SECTION A—Continued. <i>Diphtheria:</i> Total cases.....7 Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Ohio. <i>Mumps:</i> Total cases.....9 District of New England. Middle Atlantic District. District of the Gulf. District of the Pacific. <i>Influenza:</i> Total cases.....5 Southern Atlantic District. District of the Gulf. <i>Erysipelas:</i> Total cases.....105 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Pyæmia:</i> Total cases.....3 Northern Atlantic District. Middle Atlantic District. SECTION B. Total cases.....3,601 <i>Rheumatism:*</i> Total cases.....1,128 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Gout:</i> Total cases.....7 Northern Atlantic District. District of the Pacific. District of the Mississippi. <i>Syphilis:*</i> Total cases.....1,916 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District.
					1	1			1			
	1					2		1	1	2		
								1	1			
1	1			1	1		1	2	2	1	3	
							1	1	1	1	1	
1	1			1	1			1	1			
											1	
							2	2	2	1	2	
							2	2	1	1	2	
									1			
18	16	15	7	15	18	21	17	24	20	12	15	
7	5	4	1	2	5	4			1		2	
1	1	1	1	1			3	7	2	1	1	
1	1	2	2	4	5	8	3	3	7	7	2	
1	1				2	2	2	1		1	3	
4	3	3	1	1	1	1	4	5	3		1	
				1				1				
1	3	3	1	3	3	2	2	2	4	1	2	
2	2	2	1	1	1	2	2	4	2	1	2	
1				2	1	2	1	1	1	1		
	1						1			1		
	1											
							1			1		
590	573	550	568	613	753	733	684	620	549	548	562	
169	168	154	162	192	224	225	226	197	164	168	184	
19	21	15	15	21	23	26	23	19	14	21	19	
18	21	16	13	21	25	30	29	33	28	34	30	
32	27	28	29	35	40	37	34	27	27	31	41	
5	3	4	9	10	8	16	15	12	12	13	15	
20	23	22	23	32	43	38	37	38	26	18	14	
9	18	21	23	18	26	21	19	16	11	11	16	
25	23	21	22	22	16	18	23	16	14	19	28	
27	23	19	18	20	32	38	31	26	19	14	14	
14	9	8	10	13	11	11	15	10	13	7	7	
	1			1	2	2	2			1		
					1							
	1			1		1	2			1		
					1	1						
333	315	309	312	322	403	392	343	313	270	270	290	
37	27	25	41	47	46	33	22	18	21	20	22	
46	36	40	43	35	45	40	39	37	26	42	55	
45	43	47	50	56	74	77	62	50	42	38	36	
18	16	19	16	14	28	38	35	25	17	15	12	

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION B—Continued.												
<i>Syphilis</i> *—Continued.												
District of the Gulf.....	15	8	6	9	12	21	8	9	16	15	11	8
District of the Pacific.....	5	16	9	6	8	15	16	12	11	12	9	19
District of the Great Lakes.....	16	18	12	14	17	6	8	14	6	10	15	22
District of the Ohio.....	29	17	32	30	39	26	31	29	27	29	21	22
District of the Mississippi.....	28	29	15	17	21	16	10	14	14	9	10	11
<i>Cancer</i> *.....	1	4	1		1	1	1	1		2		
Total cases.....	12											
District of New England.....		1	1									
Northern Atlantic District.....		2					1					
District of the Gulf.....	1											
District of the Pacific.....					1					1		
District of the Great Lakes.....						1				1		
District of the Ohio.....		1						1				
<i>Tumors</i> *.....	2	2	3	2	1	1	1	2	2	3	2	1
Total cases.....	24											
District of New England.....		1		1								
Middle Atlantic District.....	1	1	1	1				1	1	1	1	
District of the Gulf.....	1		1		1							
District of the Pacific.....			1								1	
District of the Great Lakes.....						1				1		
District of the Ohio.....							1	1	1			
District of the Mississippi.....										1		1
<i>Scrofula</i> *.....	1	3	3	4	2	1	1	2	2	2	1	
Total cases.....	30											
District of New England.....		1		1								
Middle Atlantic District.....		1	2									
District of the Gulf.....		1	1	1	1			1	1	1		
District of the Pacific.....				1		1		1				
District of the Great Lakes.....	1										1	
District of the Ohio.....				1	1				1	1		
District of the Mississippi.....							1					
<i>Phthisis Pulmonalis</i>	19	19	20	27	27	22	29	29	29	35	28	29
Total cases.....	348											
District of New England.....	7	3	4	5	6	4	8	3	1	5	5	6
Northern Atlantic District.....	7	5	10	13	13	6	6	12	13	15	14	8
Middle Atlantic District.....		3	2	2	1	4	1	1	2	1	2	4
Southern Atlantic District.....				2		2	1	1	3	3		
District of the Gulf.....	2	2	1	2	1	1	6	6	4	4	2	1
District of the Pacific.....		2			4	2	4	4	2	1	1	3
District of the Great Lakes.....	2	1	1	1	2	9	1		2	3	4	3
District of the Ohio.....	1	2	2	1		1	1	1	1	3		4
District of the Mississippi.....		1		1		2	1	1	1			
<i>Tabes Mesenterica</i>	1											
Total cases.....	1											
Middle Atlantic District.....	1											
<i>Morbus Coxæ</i>		1						1	1			
Total cases.....	3											
District of the Gulf.....		1							1			
District of the Pacific.....								1				
<i>Diabetes</i>					1	1	1				1	
Total cases.....	4											
Middle Atlantic District.....					1							
District of the Pacific.....						1	1				1	
<i>Purpura</i>							1					
Total cases.....	1											
District of the Mississippi.....							1					

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
1	1	2	1	.....	1	1	.....	.....	.....	.....	.....	Local Diseases.
1	1	1	.....	.....	1	1	.....	.....	.....	.....	.....
1	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	<i>Vertigo:</i>
8	5	2	2	1	.....	.....	.....	.....	1	.....	5	Total cases.....5
.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Gulf.
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Pacific.
4	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	<i>Sunstroke:</i>
2	1	1	1	1	.....	.....	.....	.....	.....	.....	.....	Total cases.....18
1	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	District of New England.
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Northern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Gulf.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Ohio.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Mississippi.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	<i>Hydrocephalus:</i>
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Ohio.
.....	.....	.....	.....	.....	.....	.....	.....	2	1	.....	.....	<i>Not specified:</i>
.....	.....	.....	.....	.....	.....	.....	.....	2	1	.....	.....	Total cases.....2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.
50	62	60	51	52	63	60	69	71	67	60	54	{ OTHER DISEASES OF THE NERVOUS SYSTEM:
18	28	27	21	19	19	16	18	15	19	18	18	Total cases.....316
6	10	6	3	3	1	.....	2	.....	.....	2	1	<i>Paralysis:</i>
3	3	4	5	4	4	4	3	3	3	1	.....	Total cases.....77
2	2	3	2	2	2	2	1	.....	4	4	3	District of New England.
2	2	2	1	1	2	1	1	.....	.....	1	2	Northern Atlantic District.
2	5	4	3	3	5	3	4	3	3	3	4	Middle Atlantic District.
1	2	3	1	2	2	3	5	7	6	6	7	Southern Atlantic District.
1	2	3	4	3	2	2	.....	.....	.....	.....	.....	District of the Gulf.
1	2	2	2	1	1	1	2	2	3	1	1	District of the Pacific.
1	1	1	1	3	4	2	1	1	2	1	1	District of the Great Lakes.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Ohio.
.....	1	1	.....	.....	.....	.....	.....	.....	1	.....	.....	<i>Hemiplegia:</i>
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....9
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of New England.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Northern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.
1	.....	.....	.....	.....	.....	.....	.....	1	1	1	1	Southern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Gulf.
.....	.....	.....	.....	.....	.....	1	1	1	.....	.....	.....	<i>Paraplegia:</i>
.....	.....	.....	.....	.....	.....	1	1	1	.....	.....	.....	Total cases.....1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Great Lakes.
.....	.....	.....	.....	.....	.....	1	1	2	1	1	1	<i>Locomotor Ataxy:</i>
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of New England.
.....	.....	.....	.....	.....	.....	1	1	1	.....	.....	.....	District of the Pacific.
.....	2	4	3	3	5	6	6	5	6	6	7	<i>Epilepsy:</i>
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....20
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of New England.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Northern Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Middle Atlantic District.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Atlantic District.
.....	1	2	1	1	1	1	2	2	2	2	2	District of the Pacific.
.....	.....	1	1	1	3	2	3	2	1	.....	.....	District of the Great Lakes.
.....	1	1	.....	.....	.....	.....	.....	.....	1	1	2	District of the Ohio.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	<i>Shaking Palsy:</i>
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Total cases.....1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	Middle Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Chorea</i>							1					
Total cases.....	1											
District of the Ohio.....							1					
<i>Neuralgia*</i>	20	10	13	11	16	18	17	19	17	14	17	10
Total cases.....	191											
District of New England.....	2	2	3			3		1	1	1	3	2
Northern Atlantic District.....		1		1		1	1		7	2	1	2
Middle Atlantic District.....		1	1			1	2	5		3	1	
Southern Atlantic District.....				1	3							
District of the Gulf.....	9	1	5	5	5	6	6	7	3	3	4	3
District of the Pacific.....	4	1		4	5	3	4	4	4	1	4	3
District of the Great Lakes.....	3	2	3		1	2			1	1	3	
District of the Ohio.....	1	1			1	2	4	2	1	3	1	
District of the Mississippi.....	1	1	1		1							
<i>Insanity</i>	1			1		1	3		1		1	2
Total cases.....	11											
District of New England.....				1					1			
Northern Atlantic District.....											1	1
Southern Atlantic District.....							1					1
District of the Gulf.....	1					1	2					
<i>Melancholia</i>				1							1	
Total cases.....	2											
Southern Atlantic District.....				1							1	
DISEASES OF THE EYE.....	7	5	8	14	13	19	17	8	6	3	10	15
Total cases.....	143											
<i>Conjunctivitis</i>	2	3	1	5	7	12	6	1	1	2	1	8
Total cases.....	54											
District of New England.....				1	1		3					
Northern Atlantic District.....										1		
Middle Atlantic District.....				2								
District of the Gulf.....					1	7	1					1
District of the Pacific.....	1	1			1	1	1					2
District of the Great Lakes.....	1	1			2	1		1		1		4
District of the Ohio.....		1	1	1	2	3					1	1
District of the Mississippi.....				1			1		1			
<i>Ophthalmia*</i>	1		2	3	3	2	2	3	1		2	1
Total cases.....	25											
Middle Atlantic District.....						1		1	1			
Southern Atlantic District.....												
District of the Gulf.....					1			1				1
District of the Great Lakes.....	1		1	3	2		1				1	
District of the Ohio.....			1								1	
District of the Mississippi.....						1	1	1				
<i>Keratitis</i>				1			2	1				
Total cases.....	4											
Northern Atlantic District.....							2	1				
District of the Ohio.....				1								
<i>Scleratitis</i>										1	1	
Total cases.....	2											
Northern Atlantic District.....										1	1	
<i>Iritis</i>	2	2	3	2	1	3	5	3	4		5	3
Total cases.....	35											
District of New England.....			1	1		1	1					
Northern Atlantic District.....	1				1		2	1	1		1	2
Middle Atlantic District.....									1			
Southern Atlantic District.....												1
District of the Gulf.....			1			2		1	1		1	

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
DISEASES OF THE NOSE.....						2	1	1				
Total cases.....	4											
<i>Ozæna</i>						1	1					
Total cases.....	2											
Middle Atlantic District.....							1					
District of the Ohio.....						1						
<i>Epistaxis</i>								1				
Total cases.....	1											
District of the Great Lakes.....								1				
<i>Polypus</i>						1						
Total cases.....	1											
Northern Atlantic District.....						1						
DISEASES OF THE HEART AND ITS } MEMBRANES.....	6	8	4	9	9	10	12	8	11	8	13	8
Total cases.....	110											
<i>Pericarditis</i>		1		1	1	1	2	1	1	2	1	
Total cases.....	12											
District of New England.....							1					
Northern Atlantic District.....										1		
Middle Atlantic District.....				1		1	1					
District of the Pacific.....		1			1			1		1	1	
District of the Great Lakes.....									1			
<i>Dropsy of the Pericardium</i>	1							1		1	1	
Total cases.....	6											
District of New England.....										1		
District of the Gulf.....	1							1				
District of the Ohio.....											1	
District of the Mississippi.....												
<i>Endocarditis</i>	1				1			1		1		
Total cases.....	4											
District of New England.....					1							
Southern Atlantic District.....								1				
District of the Gulf.....										1		
District of the Great Lakes.....	1											
<i>Valve-disease</i>		1	3	4	4	8	6	3	7	3	9	8
Total cases.....	57											
District of New England.....		1	1		2	1					1	
Northern Atlantic District.....				2	1	4		2	1	1	3	6
Middle Atlantic District.....									2	1	2	
Southern Atlantic District.....							1					
District of the Gulf.....				1		1	3	1	2	1	2	1
District of the Pacific.....						1			2		1	1
District of the Great Lakes.....					1		2					
District of the Ohio.....			1	1		1						
District of the Mississippi.....			1									
<i>Hypertrophy</i>	1	3					1	1	1		2	
Total cases.....	9											
District of New England.....								1				
Northern Atlantic District.....		1					1					
Middle Atlantic District.....		1										
District of the Pacific.....	1	1							1		1	
District of the Great Lakes.....											1	
<i>Dilatation</i>					1							
Total cases.....	1											
Southern Atlantic District.....					1							

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
					2	3	2	2	1			Local Diseases.
												DISEASES OF THE NOSE:
												Total cases.....4
					1	2	1	1				<i>Ozæna:</i>
												Total cases.....2
					1	1	1	1				Middle Atlantic District.
												District of the Ohio.
							1	1	1			<i>Epistaxis:</i>
												Total cases.....1
							1	1	1			District of the Great Lakes
					1	1						<i>Polypus:</i>
					1	1						Total cases.....1
												Northern Atlantic District.
10	12	13	17	14	21	21	20	24	19	23	18	{ DISEASES OF THE HEART AND ITS
												MEMBRANES:
												Total cases.....110
1	1	1	1	1	1	3	3	3	3	2		<i>Pericarditis:</i>
1						1						Total cases.....12
												District of New England.
												Northern Atlantic District.
	1	1		1	1	2	2	1		1		Middle Atlantic District
							1	1	1	2		District of the Pacific.
								1	1			District of the Great Lakes.
3	1	1	1	1			1	1	2	2	2	<i>Dropsy of the Pericardium:</i>
												Total cases.....6
1	1	1	1	1					1	1	1	District of New England.
2												District of the Gulf.
												District of the Ohio.
										1	1	District of the Mississippi.
1				1	1	1	1		1			<i>Endocarditis:</i>
												Total cases.....4
				1	1	1						District of New England.
							1					Southern Atlantic District.
										1		District of the Gulf.
1												District of the Great Lakes.
1	2	4	8	7	14	12	12	14	10	14	14	<i>Valve-disease:</i>
												Total cases.....57
	1	1	1	3	4	1	1	1		1		District of New England.
1	1	1	3	2	6	3	4	3	3	4	8	Northern Atlantic District
								2	2	2	1	Middle Atlantic District.
				1	1	1	3	4	5	4	4	Southern Atlantic District.
												District of the Gulf.
					1	1		2		1	1	District of the Pacific.
		1	2	1	1	3	2	1	1			District of the Great Lakes.
		1	1		1	1	1					District of the Ohio.
												District of the Mississippi.
1	3	2	1			1	1	2		2		<i>Hypertrophy:</i>
												Total cases.....9
							1	1				District of New England.
	1					1						Northern Atlantic District.
1	1	1	1									Middle Atlantic District.
								1				District of the Pacific.
										1		District of the Great Lakes.
												<i>Dilatation:</i>
				1	1							Total cases.....1
				1	1							Southern Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Fatty Degeneration</i>				1			1					
Total cases.....	2											
District of the Gulf.....							1					
District of the Pacific.....				1								
<i>Heart Disease, (not specified)</i>	3	3	1	3	2	1	2	1	2	1		
Total cases.....	19											
District of New England.....										1		
Northern Atlantic District.....				1								
Middle Atlantic District.....	2	1	1		1	1	1		1			
Southern Atlantic District.....				1								
District of the Gulf.....		1						1	1			
District of the Pacific.....	1											
District of the Great Lakes.....		1		1	1		1					
DISEASES OF THE BLOOD-VESSELS...	1	5	1	3	1	4	5	4	1	2	3	2
Total cases.....	36											
<i>Aneurism*</i>		1			1	2	2	2	1	1	3	
Total cases.....	15											
District of New England.....						1		1			1	
Northern Atlantic District.....						1	1		1	1		
District of the Gulf.....					1							
District of the Pacific.....							1	1			1	
District of the Great Lakes.....		1										
District of the Ohio.....											1	
<i>Phlebitis*</i>							2					
Total cases.....	2											
Middle Atlantic District.....							1					
District of the Ohio.....							1					
<i>Varicose Veins*</i>	1	4	1	3		2	1	2		1		2
Total cases.....	19											
District of New England.....		3	1	1		1						
Middle Atlantic District.....												1
Southern Atlantic District.....				2								
District of the Gulf.....		1										
District of the Great Lakes.....	1						1	1		1		1
District of the Ohio.....						1						
DISEASES OF THE GLANDS.....	1	1	2	2	2	1	2	2	1	3	8	3
Total cases.....	30											
<i>Inflammation of Absorbents</i>	1	1	2	2	2	1	2	2	1	2	8	3
Total cases.....	29											
District of New England.....					1				1		1	2
District of the Gulf.....											1	
District of the Pacific.....												
District of the Great Lakes.....	1		2	1			2					1
District of the Ohio.....				1	1	1		2		2	6	
District of the Mississippi.....		1										
<i>Goitre</i>										1		
Total cases.....	1											
District of the Ohio.....										1		
DISEASES OF THE RESPIRATORY } SYSTEM.....	45	40	42	48	86	116	108	85	84	90	77	57
Total cases.....	942											
<i>Coryza</i>	1				1		1				1	
Total cases.....	4											
Southern Atlantic District.....							1				1	
District of the Great Lakes.....	1											
District of the Ohio.....					1							

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	2			3	6	4	3	1	2	1	3	Local Diseases.
	1			1	1	1		1			1	<i>Laryngitis:</i>
					1							Total cases.....14
												Northern Atlantic District.
							1	1				Middle Atlantic District.
					1						1	Southern Atlantic District.
				1	2	2	1		1	1	1	District of the Gulf.
	1			1	1	1	1					District of the Pacific.
					1				1			District of the Great Lakes.
												District of the Ohio.
												District of the Mississippi.
2	5	1	4	7	6	6	11	7	3	5	7	<i>Bronchial Catarrh:</i>
1	1											Total cases.....45
	1											District of New England.
	1		1			1	3	1				Northern Atlantic District.
	1					1	2	1	1		1	Middle Atlantic District.
1	1	1	3	4		2	2			3	1	Southern Atlantic District.
				1				1	1			District of the Gulf.
					1	1	1			2	3	District of the Pacific.
				2	5	1	3	4	1		1	District of the Great Lakes.
											1	District of the Ohio.
												District of the Mississippi.
64	51	51	57	76	118	123	92	87	74	71	51	<i>Bronchitis:</i>
3	2	6	7	9	11	12	11	9	3	8	4	Total cases.....448
2	1	2	3	3	3	6	6	8	4	3	2	District of New England.
12	6	6	5	11	25	20	15	22	18	17	10	Northern Atlantic District.
1	3	2	1	2	6	5	3	2	4	3	3	Middle Atlantic District.
12	9	7	8	11	14	13	12	8	9	11	6	Southern Atlantic District.
3	4	6	5	7	16	16	7	6	4	2	6	District of the Gulf.
18	13	9	14	11	11	13	8	8	11	13	7	District of the Pacific.
6	5	5	5	7	13	19	12	11	11	5	8	District of the Great Lakes.
7	8	8	9	15	19	19	18	13	10	9	5	District of the Ohio.
												District of the Mississippi.
3	6	6	4	6	9	12	7	7	6	10	5	<i>Asthma:</i>
						1				1		Total cases.....45
					1	3	1			1	1	District of New England.
					1	1		1	1			Northern Atlantic District.
					1						2	Middle Atlantic District.
1	4	3	2	2	2	2	1	2	1	1	1	Southern Atlantic District.
				1	1	2	2	2	1	1		District of the Gulf.
1	2	3	1	3	3	3	2	1	1	3	1	District of the Pacific.
			1				1	1	2	3		District of the Great Lakes.
												District of the Ohio.
28	26	23	22	33	61	67	63	57	66	50	36	<i>Pneumonia:</i>
6	5	11	8	7	7	12	11	12	14	9	8	Total cases.....272
3	1	1	1	2	5	6	5	5	11	4	2	District of New England.
3	5	3	3	4	7	5	6	7	9	8	3	Northern Atlantic District.
2	2	1	1		2	8	12	8	2	1	1	Middle Atlantic District.
3	1			1	8	13	12	8	5	3	4	Southern Atlantic District.
2	1		1	3	4	1	1	1	1			District of the Gulf.
7	9	7	6	8	11	7	5	7	10	14	14	District of the Pacific.
2	1		2	7	16	13	10	6	9	7	2	District of the Great Lakes.
	1			1	1	2	1	3	5	4	2	District of the Ohio.
												District of the Mississippi.
1		2	2	2	2	7	4	2	3	4	4	<i>Congestion of the Lungs:</i>
			1	1							1	Total cases.....22
						1						District of New England.
						1	2	1	1	1		Northern Atlantic District.
				1	2	3	2					Middle Atlantic District.
						1						Southern Atlantic District.
												District of the Gulf.
		1										District of the Pacific.
	1	1	1					1	2	1	1	District of the Great Lakes.

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
												Local Diseases.
						1				1	1	<i>Congestion of the Lungs</i> —Continued.
1										1	1	District of the Ohio.
												District of the Mississippi.
				1	1		1	1				<i>Emphysema of the Lungs:</i>
				1	1							Total cases.....2
							1	1				Southern Atlantic District.
												District of the Pacific.
10	8	9	10	11	11	14	19	23	20	10	8	<i>Pleurisy:</i>
		1	2	2			2	2	4	3		Total cases.....88
1					1	3	3	2	1	1		District of New England.
	1	3	2	3	2		1	3	4	1	2	Northern Atlantic District.
			1	1	2	3		4	2		1	Middle Atlantic District.
					1	2	4	3				Southern Atlantic District.
3	2	2	2	2	1	2	2	1	1	1	2	District of the Gulf.
1		1	1		2	2	3	2	1	1		District of the Pacific.
2	3	1	1	2	2	1	1			2	1	District of the Great Lakes.
3	2	1	1	1		1	3	6	7	1	2	District of the Ohio.
												District of the Mississippi.
									1	1		<i>Empyema:</i>
												Total cases.....2
									1			Northern Atlantic District.
										1		Middle Atlantic District.
220	205	178	170	167	203	211	180	170	153	175	197	DISEASES OF THE DIGESTIVE SYSTEM.
												Total cases .....1,284
1												<i>Stomatitis:</i>
1												Total cases.....1
												District of the Gulf.....
		1										<i>Ulcer of the Tongue:</i>
		1										Total cases.....1
												District of the Gulf.
				2								<i>Sore Throat:</i>
				1								Total cases.....2
				1								District of the Pacific.
				1								District of the Great Lakes.
									1	2	2	<i>Ulcerated Throat:</i>
												Total cases.....2
									1	1	1	District of New England.
									1	1		Southern Atlantic District.
4	4	1	2	3	2	5	9	7	8	9	8	<i>Tonsillitis:</i>
1	1	1	1			2	3	3	3	4	2	Total cases.....42
	1				1		1			1	2	District of New England.
			1	2					1	3	1	Northern Atlantic District.
						1		2				Middle Atlantic District.
1	1					1	1				1	Southern Atlantic District.
1	1						2					District of the Gulf.
							1	2	1			District of the Pacific.
						1	1		1	1	1	District of the Great Lakes.
1				1	1				2		1	District of the Ohio.
												District of the Mississippi.
								2				<i>Sloughing Sore Throat:</i>
								2				Total cases.....2
												Northern Atlantic District.
											1	<i>Elongated Uvula:</i>
												Total cases.....1
											1	District of the Ohio.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Pharyngitis</i>		1	2	1	1	2	8		2	1		4
Total cases.....												
24												
District of New England.....							2					1
Northern Atlantic District.....		1							1			
Middle Atlantic District.....				1		1	2					1
Southern Atlantic District.....							1					
District of the Gulf.....			1									2
District of the Pacific.....			1		1	1	1		1	1		
District of the Ohio.....							2					
<i>Salivation*</i>		1	1	1				1				
Total cases.....												
4												
District of the Gulf.....		1						1				
District of the Pacific.....			1									
District of the Mississippi.....				1								
<i>Salivary Fistula</i>								1				
Total cases.....												
1												
District of the Pacific.....								1				
<i>Gastritis</i>	6	3	2	6	3	8	1	3	2	4	3	3
Total cases.....												
46												
District of New England.....		1	1				1		1			
Northern Atlantic District.....	1			1		1		1		1		
Middle Atlantic District.....						2			1			
Southern Atlantic District.....						1		1				
District of the Gulf.....		1			1	1						1
District of the Pacific.....	1					1				1	1	
District of the Great Lakes.....	3		1	5	1	1		1			1	1
District of the Ohio.....		1			1					2		1
District of the Mississippi.....	1					1					1	
<i>Chronic Ulcer of Stomach</i>							1					
Total cases.....												
1												
District of the Great Lakes.....							1					
<i>Dyspepsia</i>	2	6	7	5	2	10	8	5	4	2	10	7
Total cases.....												
72												
District of New England.....		2	2	2		4	2	1	2		3	3
Northern Atlantic District.....		2				2			1		1	
Middle Atlantic District.....	2	1	4	1			1	2	1		3	1
Southern Atlantic District.....						1					1	
District of the Gulf.....							3	1				1
District of the Pacific.....		1			1	1	2			1	1	1
District of the Great Lakes.....				1								1
District of the Ohio.....						1		1				
District of the Mississippi.....			1	1	1	1			1	1		
<i>Gastrodynia</i>	1	1		1							2	
Total cases.....												
5												
District of the Gulf.....		1		1								
District of the Ohio.....	1											
District of the Mississippi.....											2	
<i>Enteritis</i>	1	1	2	1	1	5	5		3	1	1	
Total cases.....												
22												
District of New England.....	1					4				1		
Northern Atlantic District.....			1						1			
Middle Atlantic District.....			1									
District of the Gulf.....		1			1		4				1	
District of the Pacific.....				1			1					
District of the Great Lakes.....									2			
District of the Ohio.....						1						
<i>Typhlitis</i>									1			
Total cases.....												
1												
Southern Atlantic District.....									1			

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
2	2	3	2	3	3	10	4	2	2	1	4	Local Diseases.
						2	1				1	<i>Pharyngitis:</i>
	1							1				Total cases.....24
2	1	1	1	1	1	2	1				1	District of New England.
						1	1					Northern Atlantic District.
		1	1	1		3		1	2	1	2	Middle Atlantic District.
		1		1	2	2	1					Southern Atlantic District.
												District of the Gulf.
												District of the Pacific.
												District of the Ohio.
	1	1	2				1					<i>Salivation:*</i>
	1						1					Total cases.....4
		1	1									District of the Gulf.
			1	1								District of the Pacific.
				1								District of the Mississippi.
							1					<i>Salivary Fistula:</i>
							1					Total cases.....1
												District of the Pacific.
8	7	5	8	9	12	10	8	6	6	7	6	<i>Gastritis:</i>
	1	2	1			1	1	1	1			Total cases.....46
1			1	1	1	1	2	1	1			District of New England.
					2	2		1				Northern Atlantic District.
	1	1	1	1	2	1	1	1				Middle Atlantic District.
1	1				1	1			1	2	1	Southern Atlantic District.
3	1	1	5	6	3	2	2	1	1	2	2	District of the Gulf.
2	3	1		1	1	1	1		2	2	1	District of the Pacific.
1					1	1				1	1	District of the Great Lakes.
						1	1					District of the Ohio.
												District of the Mississippi.
						1	1					<i>Chronic Ulcer of Stomach:</i>
						1	1					Total cases.....1
												District of the Great Lakes.
6	7	10	7	7	13	11	12	11	5	12	12	<i>Dyspepsia:</i>
	2	3	3	2	6	3	4	4	1	3	3	Total cases.....72
	2	1			2	1	1	1		1	1	District of New England.
4	2	5	2	2		1	2	2		3	2	Northern Atlantic District.
					1					1	1	Middle Atlantic District.
1						3	3	2	1		1	Southern Atlantic District.
	1			1	2	2	1	1	2	2	2	District of the Gulf.
1			1									District of the Pacific.
		1	1	2	1	1	1					District of the Great Lakes.
					1			1				District of the Ohio.
		1	1		1	1			1	2	1	District of the Mississippi.
1	1	1	1							2	1	<i>Gastrodynia:</i>
	1	1	1									Total cases.....5
1												District of the Gulf.
										2	1	District of the Ohio.
												District of the Mississippi.
2	2	3	1	1	6	8	4	5	2	3		<i>Enteritis:</i>
2	1				4	2	1	1	1	1		Total cases.....22
		1						1				District of New England.
		1										Northern Atlantic District.
	1	1		1	1	5	3	1		1		Middle Atlantic District.
			1			1						District of the Gulf.
								2	1	1		District of the Pacific.
					1							District of the Great Lakes.
												District of the Ohio.
								1				<i>Typhlitis:</i>
								1				Total cases.....1
												Southern Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Dysentery</i>	21	28	19	24	18	16	20	10	19	15	22	28
Total cases.....	254											
District of New England.....	2	2	1	1	2	2	2	1	1	3	1	
Northern Atlantic District.....	1	1	3	1	1	3	3	2	2	3	5	
Middle Atlantic District.....	5	1	2	1	1	1	1	2	1	2	3	
Southern Atlantic District.....	1	1	2	2	2	3	1	2	1	1		
District of the Gulf.....	3	5	3	5	3	5	2	1	6	5	4	4
District of the Pacific.....	1	1	2	1	1	1	1		1	1		
District of the Great Lakes.....	1	8	1	5	2				1	2		2
District of the Ohio.....	6	9	6	5	3	3	7	7	3	1	4	7
District of the Mississippi.....	2		3	3	4	1	4		3	3	6	6
<i>Perforation of Intestine</i>												
Total cases.....	1											
District of the Pacific.....												
<i>Obstruction of Intestine</i>		1				1						
Total cases.....	2											
Middle Atlantic District.....						1						
District of the Gulf.....		1										
<i>Hernia</i> *.....	1	1		2	2	6	1	4	2		2	4
Total cases.....	26											
District of New England.....				1	1							
Northern Atlantic District.....						1		1				
Middle Atlantic District.....	1					1						
Southern Atlantic District.....						2		1				
District of the Gulf.....		1			1		1	1	2		1	2
District of the Pacific.....												
District of the Great Lakes.....						2		1				2
District of the Mississippi.....				1							1	
<i>Diarrhœa</i>	76	58	34	43	38	36	32	22	34	41	31	54
Total cases.....	551											
District of New England.....	14	10	4	1	1	4	4		2	3	3	3
Northern Atlantic District.....	7	2	1	3	3	4	3	2	5	5	3	3
Middle Atlantic District.....	5	6	2	3	2	2	6	3	4	10	6	4
Southern Atlantic District.....	1	1		4	1	4	4	5	3	4	1	6
District of the Gulf.....	13	8	5	9	9	11	4	3	6	3	3	4
District of the Pacific.....	2	1	3	5	2	1		1	2			3
District of the Great Lakes.....	7	7	2	1	1	1	1			2	2	4
District of the Ohio.....	11	8	7	5	6	4	5	7	4	7	5	18
District of the Mississippi.....	16	15	10	12	13	5	5	1	8	7	8	9
<i>Colic</i>	1				1					1		
Total cases.....	3											
Northern Atlantic District.....	1											
District of the Gulf.....					1					1		
<i>Constipation</i>	1	2		1				1			1	3
Total cases.....	12											
District of New England.....											1	
Northern Atlantic District.....												
Middle Atlantic District.....	1	1										3
Southern Atlantic District.....				1				1				
District of the Pacific.....		1										
<i>Ulceration of Rectum</i>							1					
Total cases.....	1											
District of the Great Lakes.....							1					
<i>Fistula in Ano</i>	1	4	2	2	1	2	2	3	3	2	1	1
Total cases.....	25											
District of New England.....					1			1	1		1	
Northern Atlantic District.....	1	2						1	1			
Middle Atlantic District.....		1								1		
Southern Atlantic District.....									1			

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
35	45	42	39	34	31	40	28	30	30	36	42	Local Diseases.
2	3	3	2	4	4	5	4	2	1	3	1	<i>Dysentery:</i>
1	2	3	—	1	—	3	2	2	2	3	6	Total cases.....254
6	2	2	3	2	1	—	1	3	3	5	6	District of New England.
2	1	1	2	4	4	3	2	2	2	—	—	Northern Atlantic District.
6	8	8	10	6	11	9	3	9	10	6	5	Middle Atlantic District.
1	1	3	2	—	1	2	2	2	1	1	1	Southern Atlantic District.
3	9	5	7	5	1	1	—	1	3	2	2	District of the Gulf.
10	18	13	8	6	4	11	14	6	2	5	8	District of the Pacific.
4	1	4	5	6	5	6	—	3	6	11	13	District of the Great Lakes.
1	—	—	—	—	—	—	—	—	—	—	—	District of the Ohio.
1	—	—	—	—	—	—	—	—	—	—	—	District of the Mississippi.
—	1	1	—	—	1	—	—	—	—	—	—	<i>Perforation of Intestine:</i>
—	—	—	—	—	—	—	—	—	—	—	—	Total cases.....1
—	—	—	—	—	—	—	—	—	—	—	—	District of the Pacific.
—	1	1	—	—	1	—	—	—	—	—	—	<i>Obstruction of Intestine:</i>
—	—	—	—	—	—	—	—	—	—	—	—	Total cases.....2
—	1	1	—	—	—	—	—	—	—	—	—	Middle Atlantic District.
—	—	—	—	—	—	—	—	—	—	—	—	District of the Gulf.
2	1	1	2	2	7	5	5	3	1	2	4	<i>Hernia:</i>
—	—	—	1	1	1	—	—	—	—	—	—	Total cases.....26
—	—	—	—	—	1	1	1	1	—	—	—	District of New England.
1	—	—	—	—	1	1	1	—	—	—	—	Northern Atlantic District.
—	—	—	—	—	2	1	1	—	—	—	—	Middle Atlantic District.
—	1	1	—	1	—	1	1	2	1	1	2	Southern Atlantic District.
1	—	—	—	—	—	—	—	—	—	—	—	District of the Gulf.
—	—	—	—	—	2	1	2	—	—	—	—	District of the Pacific.
—	—	—	1	—	—	—	—	—	—	1	2	District of the Great Lakes.
—	—	—	—	—	—	—	—	—	—	—	—	District of the Mississippi.
128	103	72	72	71	75	68	55	66	72	70	84	<i>Diarrhœa:</i>
19	17	11	6	1	4	5	4	6	5	5	6	Total cases.....551
10	6	2	5	5	9	7	7	10	12	8	6	District of New England.
13	7	6	5	5	6	9	7	8	11	12	7	Northern Atlantic District.
1	2	1	4	4	6	6	6	7	5	6	8	Middle Atlantic District.
22	17	10	16	16	20	14	11	8	9	7	9	Southern Atlantic District.
3	2	4	6	4	1	1	1	3	2	1	3	District of the Gulf.
11	9	7	2	1	1	2	2	1	3	5	6	District of the Pacific.
21	17	13	11	13	12	9	11	9	12	12	21	District of the Great Lakes.
28	26	18	17	22	16	15	6	14	13	14	18	District of the Ohio.
1	1	—	—	1	1	1	1	—	1	1	—	District of the Mississippi.
1	1	—	—	—	—	—	—	—	—	—	—	<i>Colic:</i>
—	—	—	—	—	—	—	—	—	—	—	—	Total cases.....3
—	—	—	—	—	—	—	—	—	—	—	—	Northern Atlantic District.
—	—	—	—	1	1	1	1	—	1	1	—	District of the Gulf.
4	4	2	2	—	—	—	1	—	—	1	3	<i>Constipation:</i>
—	—	—	—	—	—	—	—	—	—	—	—	Total cases.....12
2	—	—	—	—	—	—	—	—	—	1	—	District of New England.
1	2	1	—	—	—	—	—	—	—	—	3	Northern Atlantic District.
—	—	—	—	—	—	—	—	—	—	—	—	Middle Atlantic District.
1	2	1	1	—	—	—	1	—	—	—	—	Southern Atlantic District.
—	—	—	—	—	—	—	—	—	—	—	—	District of the Pacific.
—	—	—	—	—	—	1	1	1	—	—	—	<i>Ulceration of Rectum:</i>
—	—	—	—	—	—	—	—	—	—	—	—	Total cases.....1
—	—	—	—	—	—	1	1	1	—	—	—	District of the Great Lakes.
2	4	5	5	5	6	8	8	9	8	5	2	<i>Fistula in Ano:</i>
—	—	—	—	—	—	—	—	—	—	—	—	Total cases.....25
—	—	—	—	—	—	—	—	—	—	—	—	District of New England.
2	2	2	1	1	—	—	1	2	2	1	—	Northern Atlantic District.
—	1	—	—	—	—	—	—	—	1	1	—	Middle Atlantic District.
—	—	—	—	—	—	—	—	1	1	—	—	Southern Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Fistula in Ano</i> —Continued.												
District of the Gulf.....			1	1			1					
District of the Pacific.....								1				
District of the Great Lakes.....				1		1	1					1
District of the Ohio.....			1			1				1		
District of the Mississippi.....		1										
<i>Recto-Abdominal Fistula</i>								1				
Total cases.....1												
Northern Atlantic District.....								1				
<i>Hæmorrhoids</i> *.....		3	4	4	6	9	2	4	3	2	5	5
Total cases.....51												
District of New England.....		1			1							
Northern Atlantic District.....		1			1		1	1				1
Middle Atlantic District.....					1							
Southern Atlantic District.....						1		1	2			
District of the Gulf.....			1	1	1						2	
District of the Pacific.....			1	1	1	3						
District of the Great Lakes.....			1	1		1	1			2	1	
District of the Ohio.....			1			4		1	1		1	3
District of the Mississippi.....		1		1	1			1			1	1
<i>Fissure of Anus</i>												1
Total cases.....1												
District of New England.....												1
<i>Prolapsus of Rectum</i>					1			1			1	
Total cases.....4												
District of the Ohio.....								1				
District of the Mississippi.....					1						1	
<i>Hepatitis</i>	4	4	3	3	3	7	5	3	3	2	4	1
Total cases.....46												
District of New England.....	2	1	1	1		3	1				1	
Northern Atlantic District.....				1	1	1	2	1			1	
Middle Atlantic District.....			1							1		
Southern Atlantic District.....									1			
District of the Gulf.....					1		1				2	
District of the Pacific.....		1		1	1							
District of the Great Lakes.....	1	1	1									
District of the Ohio.....	1	1				3	1	2	1	1		1
District of the Mississippi.....									1			
<i>Cirrhosis of Liver</i>	1						1					
Total cases.....2												
District of New England.....							1					
Northern Atlantic District.....	1											
<i>Lardaceous Liver</i>								1				
Total cases.....1												
District of the Pacific.....								1				
<i>Jaundice</i>	2	1	4	2	2	3	3	2	1	1	2	4
Total cases.....31												
District of New England.....					1		1	1				1
Northern Atlantic District.....				1								
Middle Atlantic District.....			1			1	1					
Southern Atlantic District.....										1		
District of the Gulf.....			1		1		1					1
District of the Pacific.....				1				1				
District of the Great Lakes.....	1		2						1		1	1
District of the Ohio.....						1						
District of the Mississippi.....	1	1				1					1	1

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
		1	2	2	2	3	2	1	1	1	1	Local Diseases.
			1	1	2	3	1	1	1	1		<i>Fistula in Ano</i> —Continued.
		1	1		1	1	1	1				District of the Gulf.
	1	1										District of the Pacific.
									1			District of the Great Lakes.
												District of the Ohio.
												District of the Mississippi.
							1	1	1			<i>Recto-Abdominal Fistula:</i>
												Total cases.....1
							1	1	1			Northern Atlantic District.
4	5	8	10	11	15	9	9	6	4	8	11	<i>Hæmorrhoids:*</i>
												Total cases.....51
1	1	1	1	1	1							District of New England.
2	2	1		1	1	1	1	1	1		1	Northern Atlantic District.
				1								Middle Atlantic District.
					1	1	1	2	1	1		Southern Atlantic District.
		1	2	2	2					2	2	District of the Gulf.
		1	2	2	3	2	1	1				District of the Pacific.
		1	2	1	2	2	2		2	3	2	District of the Great Lakes.
1	1	2	1		4	3	3	2		1	4	District of the Ohio.
	1	1	2	3	1		1			1	2	District of the Mississippi.
											1	<i>Fissure of Anus:</i>
												Total cases.....1
											1	District of New England.
1	1			1	1		1			1	1	<i>Prolapsus of Rectum:</i>
												Total cases.....4
							1					District of the Ohio.
1	1			1	1					1	1	District of the Mississippi.
8	7	7	7	7	12	14	12	8	5	7	6	<i>Hepatitis:</i>
												Total cases.....46
3	2	2	3	2	4	4	2	1		1	1	District of New England.
			1	1	2	3	3	1		1	1	Northern Atlantic District.
1		1	1	1	1	1	1	1	1	1		Middle Atlantic District.
								1	1			Southern Atlantic District.
1				1		1	1			2	2	District of the Gulf.
	1	1	1	2	2	2	1					District of the Pacific.
1	2	2										District of the Great Lakes.
1	2	1	1		3	3	4	3	2	2	2	District of the Ohio.
1								1	1			District of the Mississippi.
1	1					1	1	1	1			<i>Cirrhosis of Liver:</i>
												Total cases.....2
						1	1	1	1			District of New England.
1	1											Northern Atlantic District.
							1					<i>Lardaceous Liver:</i>
												Total cases.....1
							1					District of the Pacific.
6	3	6	4	5	6	6	5	3	1	3	5	<i>Jaundice:</i>
												Total cases.....31
				1	1	2	3	2			1	District of New England.
			1	1								Northern Atlantic District.
1	1	2	1	1	2	2	1					Middle Atlantic District.
									1	1		Southern Atlantic District.
		1	1	1	1	1					1	District of the Gulf.
			1	1			1					District of the Pacific.
1		2						1		1	2	District of the Great Lakes.
1					1	1						District of the Ohio.
1	2	1			1					1	1	District of the Mississippi.

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
5	7	8	6	6	9	11	11	14	16	10	5	Local Diseases.
1	2	3	1	1	2	3	2	3	5	2	.....	<i>Cystitis</i> : Total cases.....49
3	5	3	2	2	4	2	2	2	3	1	1	District of New England.
1	1	1	2	3	2	3	2	Northern Atlantic District.
.....	1	1	1	.....	1	2	3	3	3	2	Middle Atlantic District.
.....	1	1	1	1	1	2	2	2	1	1	Southern Atlantic District.
.....	1	1	1	1	1	1	.....	.....	.....	District of the Gulf.
.....	District of the Pacific.
.....	District of the Great Lakes.
.....	District of the Ohio.
.....	1	.....	.....	.....	.....	.....	<i>Recto-Vesical Fistula</i> :
.....	1	.....	.....	.....	.....	.....	Total cases.....1
.....	Northern Atlantic District.
2	1	.....	1	1	1	2	2	2	3	3	2	<i>Vesical Calculus</i> :*
.....	1	1	Total cases.....9
.....	1	1	1	.....	.....	1	1	.....	.....	Northern Atlantic District.
.....	1	1	.....	.....	.....	.....	Middle Atlantic District.
1	1	.....	.....	.....	.....	1	1	1	1	1	.....	Southern Atlantic District.
.....	1	1	1	District of the Gulf.
1	District of the Pacific.
.....	District of the Great Lakes.
.....	1	3	2	.....	2	2	1	.....	1	.....	<i>Hæmaturia</i> :
.....	Total cases.....8
.....	1	1	.....	1	1	1	.....	.....	.....	District of New England.
.....	1	.....	Northern Atlantic District.
.....	1	2	1	.....	1	.....	.....	.....	.....	.....	Middle Atlantic District.
.....	Southern Atlantic District.
.....	District of the Gulf.
.....	1	1	1	.....	.....	.....	.....	<i>Paralysis of the Bladder</i> :
.....	1	1	.....	.....	.....	.....	Total cases.....1
.....	1	1	2	1	2	1	1	.....	1	1	District of the Great Lakes.
.....	<i>Incontinence of Urine</i> :
.....	Total cases.....5
.....	District of New England.
.....	1	1	1	.....	.....	.....	1	.....	.....	.....	Southern Atlantic District.
.....	1	.....	.....	1	1	District of the Pacific.
.....	District of the Ohio.
2	1	1	.....	.....	.....	.....	.....	.....	.....	1	.....	<i>Retention of Urine</i> :
.....	Total cases.....4
1	1	.....	Middle Atlantic District.
1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	District of the Pacific.
.....	District of the Great Lakes.
.....	1	1	2	.....	2	3	1	<i>Inflammation of Prostate</i> :
.....	1	.....	.....	Total cases.....6
.....	1	1	District of New England.
.....	1	1	1	.....	.....	1	1	Northern Atlantic District.
.....	1	.....	.....	.....	.....	Southern Atlantic District.
.....	1	2	.....	District of the Pacific.
.....	District of the Ohio.
6	9	7	13	19	28	19	22	16	23	30	32	<i>Gonorrhœa</i> :
.....	Total cases.....131
.....	5	8	14	11	8	7	5	6	8	District of New England.
4	7	6	8	8	9	3	4	2	4	6	6	Northern Atlantic District.
.....	1	1	.....	2	3	2	3	2	7	6	9	Middle Atlantic District.
.....	1	1	1	1	1	4	3	Southern Atlantic District.
.....	1	1	1	2	.....	.....	District of the Gulf.
1	1	1	.....	3	1	1	2	1	District of the Pacific.
.....	1	3	District of the Great Lakes.

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
												Local Diseases.
						1		1	1	1		<i>Gonorrhœa</i> —Continued.
1	1						2	1	2	4	2	District of the Ohio.
												District of the Mississippi.
			1	1	1		1	1		1	2	<i>Balanitis:</i>
												Total cases.....5
			1	1	1							Middle Atlantic District.
							1	1		1	2	District of the Pacific.
2	3	3				6	6	8	6	4	3	<i>Phimosis:</i>
1						1	1	1				Total cases.....26
								1	2	1		District of New England.
1	2	3							1	1		Northern Atlantic District.
							1	1				Middle Atlantic District.
	1											Southern Atlantic District.
							1	1		1	1	District of the Gulf.
												District of the Pacific.
						5	3	4	3	1	1	District of the Great Lakes.
												District of the Ohio.
		1						2	1	2	2	<i>Paraphimosis:</i>
		1										Total cases.....6
												Northern Atlantic District.
										1	2	Middle Atlantic District.
								2	1	1		District of the Ohio.
5	5	7	8	8	10	9	11	4	7	12	9	<i>Bubo:</i>
						1						Total cases.....57
		1	1			1	1			1	3	District of New England.
	1	3	1	2	7	4	7	2	2	8	3	Northern Atlantic District.
1						1	1	1	2	2	1	Middle Atlantic District.
1	1	1	2	3	1	1	1				2	Southern Atlantic District.
1	1	1	4	3	2	2			2	1		District of the Gulf.
2	2	1					1	1	1			District of the Great Lakes.
												District of the Mississippi.
								1				<i>Condyloma:</i>
								1				Total cases.....1
												District of New England.
				1			3	1	1	2		<i>Gleet:</i>
												Total cases.....7
							3	1	1	2		Middle Atlantic District.
				1								District of the Gulf.
												District of the Great Lakes.
	2	3	2	2	1	1	1	4	3	2	3	<i>Urethritis:</i>
					1	1		1	1			Total cases.....16
	2	2										District of New England.
		1	2	2			1	3	2	2	3	Middle Atlantic District.
22	20	21	16	16	25	33	34	32	24	30	16	District of the Pacific.
10	9	11	4	4	3	3	6	5	3	5	3	<i>Stricture of the Urethra:*</i>
5	4	2	1	2	2	6	8	6	5	6	3	Total cases.....143
	1	1		2	4	5	3	2	3	5	1	District of New England.
1	1		1			2				3	1	Northern Atlantic District.
1	3	2	3	3	9	8	8	10	8	6	1	Middle Atlantic District.
4	1	4	5	3	3	3	4	4	2	4	6	Southern Atlantic District.
1	1	1			2	2	2	3	1			District of the Gulf.
			2	2	2	4	3	2	2	1	1	District of the Pacific.
												District of the Great Lakes.
												District of the Ohio.
2					1	1	1	2	3	4	2	<i>Urinary Fistula:</i>
												Total cases.....7
								1	1	2	1	District of New England.
1												Middle Atlantic District.

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Urinary Fistula</i> —Continued.												
District of the Pacific						1				1		
District of the Great Lakes.....											1	
District of the Ohio.....												
DISEASES OF THE MALE ORGANS } OF GENERATION.....	19	27	20	20	21	21	24	20	17	14	28	24
Total cases.....	268											
<i>Hydrocele</i>	1	3	1	1	2	4	5	5	1	1	2	3
Total cases.....	29											
District of New England.....		2									1	1
Northern Atlantic District.....	1						1	1	1			
Middle Atlantic District.....				1	1	3		3				
Southern Atlantic District.....											1	
District of the Gulf.....		1	1				1	1				1
District of the Pacific.....						1				1		
District of the Great Lakes.....					1		3					1
<i>Variocoele</i>					1							
Total cases.....	1											
District of the Pacific.....					1							
<i>Orchitis</i>	17	20	16	18	16	15	17	10	12	10	19	18
Total cases.....	200											
District of New England.....	4	2	2	2			1		1		1	3
Northern Atlantic District.....	1	6	3	6	6	4	4	3	1	3	5	2
Middle Atlantic District.....	2	2	5	1	2	2	3	5		2	5	3
Southern Atlantic District.....	1				1	2			2	1	2	
District of the Gulf.....	1	2			1	2	3	1	2	1	1	2
District of the Pacific.....	5	2		2	2	3	3	1	1			2
District of the Great Lakes.....	1	4	4	5	3		2		4	1	4	4
District of the Ohio.....	1		1	1	1	1	1			2		2
District of the Mississippi.....	1	2	1	1		1			1		1	
<i>Epididymitis</i>	1	2	1		2	2	2	2	3	3	6	1
Total cases.....	26											
District of New England.....					1	1	1	1	2	1	1	1
Northern Atlantic District.....											2	
Middle Atlantic District.....						1						
District of the Pacific.....								1				
District of the Great Lakes.....	1	2	1							1	2	
District of the Ohio.....					1		1		1	1	1	
<i>Protrusion of Tubuli Seminales</i>			1									
Total cases.....	1											
District of the Ohio.....			1									
<i>Spermatorrhœa</i>		2	1	1				3	1		1	2
Total cases.....	11											
District of New England.....		1	1						1			2
Middle Atlantic District.....								1			1	
District of the Ohio.....				1				2				
District of the Mississippi.....		1										
DISEASES OF THE ORGANS OF LOCO- } MOTION.....	8	8	7	6	10	13	10	13	6	10	9	7
Total cases.....	120											
<i>Ostitis</i>		1		1						2		
Total cases.....	4											
District of the Gulf.....										1		
District of the Pacific.....		1		1						1		

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
					1	1	1	1	2	1		Local Diseases. <i>Urinary Fistula</i> —Continued. District of the Pacific. District of the Great Lakes. District of the Ohio. { DISEASES OF THE MALE ORGANS OF GENERATION. Total cases..... 268 <i>Hydrocele:</i> Total cases..... 29 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. <i>Variocoele:</i> Total cases..... 1 District of the Pacific. <i>Orchitis:</i> Total cases..... 200 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi. <i>Epididymitis:</i> Total cases..... 26 District of New England. Northern Atlantic District. Middle Atlantic District. District of the Pacific. District of the Great Lakes. District of the Ohio. <i>Protrusion of Tubuli Seminales:</i> Total cases..... 1 District of the Ohio. <i>Spermatorrhœa:</i> Total cases..... 11 District of New England. Middle Atlantic District. District of the Ohio. District of the Mississippi. DISEASES OF THE ORGANS OF LOCO- MOTION. Total cases..... 120 <i>Ostitis:</i> Total cases..... 4 District of the Gulf. District of the Pacific.
1										1	1	
32	44	43	32	30	40	51	53	37	28	42	44	
1	4	4	2	4	8	9	11	4	3	5	5	
	2	1								1	1	
1	1	1				1	2	2	1	1		
			1	2	5	2	4	2	1			
	1	2	1	1	1	1	1			1	1	
				1	1	4	4		1	1	1	
				1	1						1	
				1	1							
29	35	32	26	23	27	37	35	27	20	28	31	
4	6	4	3	1		1	1	2		1	4	
3	7	6	6	8	8	10	13	4	4	7	7	
5	4	6	4	2	3	6	7	6	2	5	5	
1				1	3	3	2	2	2	3		
2	2	2	1	1	3	5	2	3	2	2	4	
7	5	5	3	2	5	6	6	3	1		2	
4	7	6	6	4	2	3	2	5	6	6	6	
2	1	1	2	3	2	2	3	1	3	3	2	
1	3	2	1	1	1	1		1		1	1	
2	3	3		2	3	5	4	4	5	8	5	
				1	1	2	2	2	2	2	2	
					1	1				2		
							1					
2	3	3							1	2	2	
				1	1	2	1	2	2	2	1	
		1	1									
		1	1									
	2	3	3				3	2		1	3	
	1	2	1					1			2	
			1				2	1		1	1	
	1	1	1									
21	22	18	15	19	26	25	29	23	22	20	14	
	1	1	1	1					2	2		
	1	1	1	1					1	1		
									1	1		

V.—*Tabular Statement, by Months and Districts, of Diseases and*

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Periostitis</i>	2	2	3	1	5	2	2	—	2	2	3	2
Total cases.....	26											
District of New England.....	1	—	1	—	1	—	1	—	1	—	—	—
Northern Atlantic District.....	—	—	—	—	1	—	—	—	—	—	—	—
Southern Atlantic District.....	—	—	—	—	1	1	—	—	—	—	—	1
District of the Gulf.....	—	—	—	—	—	—	—	—	—	2	—	—
District of the Pacific.....	—	1	1	—	1	1	1	—	1	—	—	—
District of the Great Lakes.....	1	1	—	1	2	—	—	—	—	—	2	1
District of the Ohio.....	—	—	1	—	—	—	—	—	—	—	1	—
<i>Caries*</i>	1	—	1	—	1	3	3	1	—	3	1	2
Total cases.....	19											
District of New England.....	—	—	1	—	—	—	1	—	—	—	1	2
Northern Atlantic District.....	—	—	—	—	—	—	—	1	—	—	—	—
Middle Atlantic District.....	—	—	—	—	—	—	—	—	—	3	—	—
District of the Gulf.....	—	—	—	—	—	2	1	—	—	—	—	—
District of the Great Lakes.....	1	—	—	—	1	1	1	—	—	—	—	—
<i>Necrosis*</i>	2	1	1	2	2	3	2	6	2	1	3	2
Total cases.....	30											
District of New England.....	2	—	—	—	1	—	1	2	—	1	1	2
Northern Atlantic District.....	—	—	—	—	—	—	—	—	—	—	—	—
Middle Atlantic District.....	—	—	1	—	—	—	1	1	1	—	2	—
District of the Gulf.....	—	—	—	—	—	2	1	—	—	—	—	—
District of the Pacific.....	—	—	—	1	—	1	—	2	1	—	—	—
District of the Great Lakes.....	—	1	—	—	—	—	—	1	—	—	—	—
District of the Ohio.....	—	—	—	1	1	—	—	—	—	—	—	—
<i>Synovitis*</i>	3	3	1	1	2	4	3	5	2	2	2	1
Total cases.....	34											
District of New England.....	—	1	—	—	1	2	1	1	—	1	—	—
Northern Atlantic District.....	—	—	1	—	1	—	—	—	—	1	2	—
Middle Atlantic District.....	—	1	—	—	—	—	—	—	—	—	—	1
Southern Atlantic District.....	—	—	—	—	—	—	1	—	2	—	—	—
District of the Gulf.....	—	1	—	—	—	2	1	2	—	—	—	—
District of the Pacific.....	2	—	—	—	—	—	—	1	—	—	—	—
District of the Great Lakes.....	1	—	—	1	—	—	—	1	—	—	—	—
District of the Ohio.....	—	—	—	—	—	—	—	—	—	—	—	—
<i>Psoas Abscess</i>	—	—	1	—	—	1	—	—	—	—	—	—
Total cases.....	4											
District of the Great Lakes.....	—	—	1	—	—	—	—	—	—	—	—	—
District of the Ohio.....	—	—	—	—	—	1	—	—	—	—	—	—
<i>Disease of Spine, (not specified)*</i>	—	—	—	1	—	—	—	—	—	—	—	—
Total cases.....	1											
District of New England.....	—	—	—	1	—	—	—	—	—	—	—	—
<i>Progressive Muscular Atrophy</i>	—	—	—	—	—	—	—	1	—	—	—	—
Total cases.....	1											
District of the Pacific.....	—	—	—	—	—	—	—	1	—	—	—	—
<i>Bunion</i>	—	1	—	—	—	—	—	—	—	—	—	—
Total cases.....	1											
District of the Pacific.....	—	1	—	—	—	—	—	—	—	—	—	—
DISEASES OF THE CELLULAR TIS- } SUE AND CUTANEOUS SYSTEM... }	54	58	72	61	84	77	101	59	48	69	68	73
Total cases.....	872											
<i>Inflammation of Cellular Tissue</i>	—	—	—	—	—	1	2	1	1	—	—	2
Total cases.....	7											
Northern Atlantic District.....	—	—	—	—	—	1	1	1	1	—	—	—
District of the Pacific.....	—	—	—	—	—	—	1	—	—	—	—	2

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Abscess of Cellular Tissue*</i>	14	18	20	17	24	18	28	15	18	21	23	27
Total cases.....	261											
District of New England.....	4	5	3	4	7	5	6	1	5	5	5	6
Northern Atlantic District.....	3	3	4	4	3	1	1	1	4	1	5	5
Middle Atlantic District.....	2	2	5	3	3	2	4	1	1	5	2	4
Southern Atlantic District.....		1	1		1	3	6	3		2	1	1
District of the Gulf.....	2	1	1	1	4	1	2	3	2	2	2	1
District of the Pacific.....			2	3		1	3	4	4	5	3	3
District of the Great Lakes.....	1	2	4	1	1						3	6
District of the Ohio.....	2	3		1	4	2	4		2	1	2	
District of the Mississippi.....		1			1	3	2	2				1
<i>Prurigo</i>									2			
Total cases.....	2											
Middle Atlantic District.....									1			
District of the Pacific.....									1			
<i>Lichen*</i>	1										1	
Total cases.....	2											
District of New England.....											1	
District of the Great Lakes.....	1											
<i>Pityriasis</i>												
Total cases.....	1											
District of the Ohio.....												
<i>Psoriasis*</i>	1										1	1
Total cases.....	3											
District of New England.....	1											
Northern Atlantic District.....											1	
District of the Ohio.....												1
<i>Herpes*</i>						2		1				2
Total cases.....	6											
District of New England.....						1						
Middle Atlantic District.....												2
District of the Gulf.....												
District of the Great Lakes.....						1						
District of the Ohio.....								1				
<i>Eczema*</i>	1	2	2	4	4	2	1	3	1	5	1	3
Total cases.....	29											
District of New England.....		1			1	2		1				
Middle Atlantic District.....	1	1	1	1	2		1	1		1		
Southern Atlantic District.....				1								1
District of the Great Lakes.....			1	2	1						1	1
District of the Ohio.....									1	4		
District of the Mississippi.....								1				1
<i>Impetigo*</i>						1						
Total cases.....	1											
Southern Atlantic District.....						1						
<i>Rupia*</i>							3				2	
Total cases.....	5											
Middle Atlantic District.....											1	
Southern Atlantic District.....							1					
District of the Great Lakes.....							1				1	
District of the Ohio.....							1					
<i>Ecthyma</i>				1		1			1			1
Total cases.....	4											
District of the Pacific.....				1								
District of the Great Lakes.....												1
District of the Ohio.....						1			1			

V.—Tabular Statement, by Months and Districts, of Diseases and

DISEASES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Sycosis</i>				1					1	1		
Total cases.....												
Northern Atlantic District.....									1	1		
District of the Pacific.....				1								
<i>Frostbite</i>			1		2	5	16	9	3	5	3	
Total cases.....												
District of New England.....			1		1	4	6	4	2	4		
Northern Atlantic District.....					1		4		1		1	
Middle Atlantic District.....							1	3		1		
Southern Atlantic District.....							2					
District of the Pacific.....								1				
District of the Great Lakes.....						1	1	1			2	
District of the Ohio.....							2					
<i>Ulcer*</i>	34	29	37	30	39	32	33	18	14	26	24	30
Total cases.....												
District of New England.....	7	4	8	3	3	3	2	1	1	3	2	2
Northern Atlantic District.....	5	2	2	3	4	5	3	1	1	4	1	2
Middle Atlantic District.....	7	7	4	8	10	7	8	7		4	6	6
Southern Atlantic District.....						4	6	1	4			4
District of the Gulf.....	4	5	7	6	7	4	6	3	3	5	5	3
District of the Pacific.....		2	3	4	4	1	1	2		3		6
District of the Great Lakes.....	5	4	5	2	8	4	3	1	1	2	5	5
District of the Ohio.....	1	3	4	3	4	3	3	1	3	3	3	1
District of the Mississippi.....	5	2	4	1	3	1	1	1	1	2	2	1
<i>Boil</i>		1	2		1	2	1				3	
Total cases.....												
District of New England.....			1			2						
Middle Atlantic District.....			1								1	
Southern Atlantic District.....											1	
District of the Gulf.....					1							
District of the Great Lakes.....											1	
District of the Ohio.....		1					1					
District of the Mississippi.....												
<i>Carbuncle</i>				1	3	2	3	3	1			
Total cases.....												
District of New England.....					1							
Northern Atlantic District.....				1		2	1		1			
Middle Atlantic District.....					1		1	1				
Southern Atlantic District.....					1		1	2				
<i>Onychia</i>								1				
Total cases.....								1				
Middle Atlantic District.....								1				
<i>Whitlow</i>	3	6	10	6	8	10	11	6	6	9	9	7
Total cases.....												
District of New England.....			1	1		3	3			3	1	
Northern Atlantic District.....	1		1	1	1	3	1	2	2	3	4	4
Middle Atlantic District.....		1	2	1		1		1	2			
Southern Atlantic District.....			1	1	2	2	3		1	1	1	
District of the Gulf.....	1	1	1		2		3	3				1
District of the Pacific.....		2								1		
District of the Great Lakes.....		2	3	1	3	1			1		2	1
District of the Ohio.....	1		1	1			1			1	1	1
<i>Senile Gangrene</i>					1		1					
Total cases.....												
Northern Atlantic District.....					1							
Southern Atlantic District.....							1					
<i>Molluscum</i>							1					
Total cases.....							1					
Southern Atlantic District.....							1					

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
			1					1	2	2	1	Local Diseases.
			1					1	2	2	1	
4	3	2	2	3	8	22	22	16	11	6	4	<i>Sycosis:</i>
1	1	1	1	1	5	9	10	6	6	2	1	Total cases.....3
2	1	1	1	2	2	6	1	2	1	1		Northern Atlantic District.
						1	4	4	2			District of the Pacific.
						2	2	2	1			<i>Frostbite:</i>
						1	1	1	1	1	1	Total cases.....48
1	1				1	2	2			2	2	District of New England.
						2	2	1				Northern Atlantic District.
52	55	66	70	80	91	95	81	60	50	57	61	Middle Atlantic District.
7	7	13	10	9	6	4	5	4	4	4	4	Southern Atlantic District.
7	5	5	5	5	9	8	6	3	6	3	3	District of the Gulf.
9	13	8	14	18	15	17	17	11	9	12	14	District of the Pacific.
					4	8	7	7	2	2	5	District of the Great Lakes.
10	11	14	19	16	20	18	14	10	11	13	11	District of the Ohio.
3	3	6	7	8	7	7	7	5	5	3	7	District of the Mississippi.
7	7	8	5	11	14	14	10	8	2	7	9	
2	4	7	7	8	11	13	11	9	7	9	5	
7	5	5	3	5	5	6	4	3	4	4	3	
1	1	3	1	1	2	2				3	1	<i>Boil:</i>
		1	1		2	1						Total cases.....11
		1								1	1	District of New England.
										1		Middle Atlantic District.
				1								Southern Atlantic District.
										1		District of the Gulf.
	1	1				1						District of the Great Lakes.
1												District of the Ohio.
1			1	3	2	3	5	3	1			District of the Mississippi.
				1								<i>Carbuncle:</i>
1			1		2	1		1				Total cases.....14
				1		1	2	1	1			District of New England.
				1		1	3	1				Northern Atlantic District.
												Middle Atlantic District.
							1	1				Southern Atlantic District.
							1	1				<i>Onychia:</i>
												Total cases.....1
												Middle Atlantic District.
6	9	15	14	13	17	17	15	12	12	17	16	<i>Whitlow:</i>
1		1	2	1	3	6	3		3	3	2	Total cases.....94
1		1	2	1	4	3	4	5	3	7	7	District of New England.
	1	2	2		1		1	2	2			Northern Atlantic District.
		1	2	4	4	4	1	1	2	2	1	Middle Atlantic District.
2	3	2	1	2	1	3	5	3			1	Southern Atlantic District.
1	2	2							1	1		District of the Gulf.
	2	5	4	4	4			1		2	2	District of the Pacific.
1	1	1	1	1		1	1		1	2	3	District of the Great Lakes.
				1	1	1	1	1				District of the Ohio.
				1	1							<i>Senile Gangrene:</i>
				1	1	1	1	1				Total cases.....2
						1	1	1				Northern Atlantic District.
												Southern Atlantic District.
						1						<i>Molluscum:</i>
						1						Total cases.....1
												Southern Atlantic District.

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
						1						Local Diseases.
						1						
									1	1		<i>Cheloid:</i>
												Total cases.....1
												Middle Atlantic District.
												<i>Tinea Tonsurans:</i>
												Total cases.....1
												District of the Great Lakes.
					1				1	1	1	<i>Scabies:</i>
												Total cases.....2
									1	1	1	District of New England.
					1							Northern Atlantic District.
1	3	1	1	2			2			1		<i>Not specified:*</i>
												Total cases.....9
1	3	1		1			2			1		District of New England.
			1									District of the Pacific.
												District of the Great Lakes.
16	13	9	8	10	10	7	10	10	5	8	2	DEBILITY:*
												Total cases.....65
3	4			1	2			1	1	1		District of New England.
				1	1					1		Northern Atlantic District.
2	1					1					1	Middle Atlantic District.
			1	1	1	1	1					Southern Atlantic District.
2	3	4	2	1	1	1	2	3	2	2	1	District of the Gulf.
4	3	4	2	3	1	2	4	2		1		District of the Great Lakes.
4	2	1	2	3	4	2	3	4	2	2		District of the Ohio.
1			1									District of the Mississippi.
12	16	10	8	5	7	8	14	9	9	12	16	POISONS:
												Total cases.....86
1	1											<i>Mercury:</i>
												Total cases.....1
1	1											District of the Pacific.
	2	1	1						1			<i>Lead, (Colic:)</i>
												Total cases.....3
									1			District of New England.
	1											Middle Atlantic District.
	1	1	1									District of the Gulf.
4	7	4	3	3	3	3	7	4	3	3	3	<i>Alcohol:</i>
												Total cases.....28
1												District of New England.
2	3	2			1		1	1	1	1	1	Northern Atlantic District.
	1		2	3	2	2	3	3	1	1	1	Middle Atlantic District.
	1					1	1		1	1		District of the Gulf.
											1	District of the Pacific.
1	2	2	1				2					District of the Ohio.
												<i>Delirium Tremens:</i>
6	4	4	3	2	4	5	5	4	5	7	10	Total cases.....44
				1	2					1		District of New England.
												District of New England.
1	2	1	1					1	2		1	Northern Atlantic District.
				1				1				Middle Atlantic District.
3	1	1				2	2	2		3	4	Southern Atlantic District.
		1	1		2	3	3		2	1		District of the Gulf.
1	1	1										District of the Great Lakes.
1											3	District of the Ohio.
												District of the Mississippi.
											1	<i>Rhus Toxicodendron:</i>
												Total cases.....1
											1	Northern Atlantic District.

V.—*Tabular Statement, by Months and Districts, of Diseases and*

DISEASES AND INJURIES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Not specified*</i>		2		1				2			2	1
Total cases.....												
Northern Atlantic District.....				1								
District of the Gulf.....		1						1				
District of the Pacific.....											1	
District of the Great Lakes.....											1	
District of the Ohio.....		1						1				
District of the Mississippi.....												1
Human Parasites.												
<i>Tænia Solium</i>				1			1	1	1		1	
Total cases.....												
Northern Atlantic District.....							1		1			
Middle Atlantic District.....											1	
District of the Gulf.....												
District of the Great Lakes.....				1				1				
Injuries.												
<i>Burns and Scalds</i>	4	2	3	4	4	13		1	4	3	3	8
Total cases.....												
District of New England.....			2		1				1		1	
Northern Atlantic District.....												
Middle Atlantic District.....	1							1		1		
Southern Atlantic District.....						2			1			1
District of the Gulf.....		1		3		8						2
District of the Pacific.....			1		1				1			1
District of the Great Lakes.....	2			1	1	2					2	3
District of the Ohio.....	1	1				1			1	2		
District of the Mississippi.....					1							1
<i>Lightning Stroke</i>	1											
Total cases.....												
District of New England.....	1											
<i>Concussion of the Brain</i>	1	1	2	3		2		2			1	1
Total cases.....												
District of New England.....	1	1						1			1	1
Middle Atlantic District.....				1								
Southern Atlantic District.....						1						
District of the Gulf.....						1						
District of the Pacific.....			1									
District of the Great Lakes.....			1	2								
District of the Ohio.....								1				
<i>Contusions*</i>	53	50	60	39	83	67	51	57	54	44	61	64
Total cases.....												
District of New England.....	3	2	4	5	5	5	3	6	5	2	7	8
Northern Atlantic District.....	4		2	3	3	7	4	3	10	3	6	12
Middle Atlantic District.....	4	4	2	5	6	8	5	8	2	9	5	4
Southern Atlantic District.....		2	3	1	6	4	5	1	4	3	1	3
District of the Gulf.....	3	4	5	3	8	11	14	10	4	6	14	5
District of the Pacific.....	4	4	2	1	8	3		6	3	7	7	5
District of the Great Lakes.....	20	24	25	11	27	5	4	3	3	3	14	15
District of the Ohio.....	8	5	8	5	10	21	14	16	15	8	6	9
District of the Mississippi.....	7	5	9	5	10	3	2	4	8	3	1	3
<i>Sprains*</i>	15	6	9	7	7	18	12	10	9	12	15	11
Total cases.....												
District of New England.....	2	1	1			3	1	2	2	1	1	1
Northern Atlantic District.....		1	1	3			3					2
Middle Atlantic District.....			1		2	2	1	1	2		1	2
Southern Atlantic District.....	1				1	2				1	1	
District of the Gulf.....		1	1	1		6	1	3		3	2	

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.												DISEASES AND INJURIES.
1873.						1874.						
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
1	2	1	1				2	1		2	2	Local Diseases. <i>Not specified :*</i> Total cases.....9 Northern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi.
1	1		1				1			1	1	
	1	1					1	1		1		
											1	
			1	1		1	2	1	1	1		Human Parasites. <i>Tænia Solium :</i> Total cases.....5 Northern Atlantic District. Middle Atlantic District. District of the Gulf. District of the Great Lakes.
						1	1	1	1			
							1			1		
			1	1								
7	7	5	6	7	15	13	4	6	6	6	10	Injuries. <i>Burns and Scalds :</i> Total cases.....52 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi.
1		2		1				1	1	1	1	
1	1	1					1	1	1	1		
1	1				2	2		1	1	1	1	
1	2	1	4	1	9	8	1				2	
2	1	1	1	2	2	1	1	1			1	<i>Lightning Stroke :</i> Total cases.....1 District of New England.
1	2			2	2	1	1	1	3	1	4	
				1	1	1	1	1			1	
1												
1												
2	2	4	4	1	2	1	3	1	1	1	2	<i>Concussion of the Brain :</i> Total cases.....14 District of New England. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio.
2	2	2		1	1		1			1	2	
			1			1						
					1	1	1	1	1			
		1	3				1					
105	97	111	91	129	139	138	138	117	91	98	101	<i>Contusions :*</i> Total cases.....735 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf. District of the Pacific. District of the Great Lakes. District of the Ohio. District of the Mississippi.
7	6	10	11	11	15	11	12	10	6	9	10	
11	3	2	3	5	11	10	7	13	9	7	15	
8	8	7	9	9	12	11	16	8	13	11	5	
	2	4	2	6	4	7	7	7	3	3	5	
10	10	8	8	15	22	34	26	17	14	22	17	<i>Sprains :*</i> Total cases.....137 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf.
7	9	9	3	9	9	3	6	8	8	13	7	
35	38	45	32	46	30	22	21	13	8	20	26	
15	11	13	10	16	31	35	36	28	20	9	12	
12	10	13	13	12	5	5	7	13	10	4	4	
21	18	16	12	11	23	30	20	18	18	24	28	<i>Sprains :*</i> Total cases.....137 District of New England. Northern Atlantic District. Middle Atlantic District. Southern Atlantic District. District of the Gulf.
4	4	2	2		3	4	2	3	2	2	3	
	1	2	4	1	1	3	2				2	
1	1	1		2	2	3	1	2	1	1	3	
	1	1	2	1	6	6	4	3	3	4	3	

V.—Tabular Statement, by Months and Districts, of Diseases and

INJURIES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Injuries.												
<i>Sprains*</i> —Continued.												
District of the Pacific.....	3	—	1	—	1	3	4	1	3	1	—	1
District of the Great Lakes.....	7	2	2	1	2	1	1	—	—	—	7	2
District of the Ohio.....	1	1	1	1	1	—	1	3	2	6	2	2
District of the Mississippi.....	1	—	1	1	—	1	—	—	—	—	1	1
<i>Incised Wounds*</i>	5	10	8	8	4	9	10	6	10	8	10	15
Total cases.....108												
District of New England.....	1	1	—	1	—	—	1	—	1	1	3	—
Northern Atlantic District.....	—	1	—	2	—	—	—	—	1	1	—	—
Middle Atlantic District.....	2	1	1	—	—	—	1	1	—	—	—	1
Southern Atlantic District.....	—	1	2	1	1	3	2	—	—	1	1	2
District of the Gulf.....	1	—	1	—	—	3	4	2	2	1	2	1
District of the Pacific.....	—	—	1	—	—	—	1	—	1	—	1	1
District of the Great Lakes.....	—	1	—	1	1	—	—	—	—	—	—	1
District of the Ohio.....	—	2	1	1	2	2	1	3	3	3	—	4
District of the Mississippi.....	1	3	2	2	—	1	—	2	2	1	3	5
<i>Punctured Wounds*</i>	1	1	—	1	1	2	1	2	2	3	2	3
Total cases.....19												
District of New England.....	1	—	—	—	—	—	1	—	—	—	—	—
Northern Atlantic District.....	—	—	—	—	—	—	—	—	—	—	1	—
Southern Atlantic District.....	—	—	—	—	—	1	—	—	—	—	—	2
District of the Gulf.....	—	—	—	1	—	1	—	—	1	—	—	—
District of the Great Lakes.....	—	1	—	—	—	—	—	—	—	—	1	1
District of the Ohio.....	—	—	—	—	1	—	—	2	1	3	—	—
<i>Lacerated Wounds*</i>	11	11	10	7	6	9	3	10	9	11	7	6
Total cases.....104												
District of New England.....	1	1	—	2	—	—	—	—	1	—	—	—
Northern Atlantic District.....	2	2	3	2	2	—	—	1	2	—	—	—
Middle Atlantic District.....	2	1	—	2	2	3	1	2	1	3	3	1
Southern Atlantic District.....	—	1	1	—	—	—	—	—	1	2	—	—
District of the Gulf.....	—	1	2	—	1	1	1	2	—	—	1	2
District of the Pacific.....	—	2	—	—	—	2	—	1	2	1	—	1
District of the Great Lakes.....	3	—	2	—	—	—	—	—	1	1	2	2
District of the Ohio.....	—	1	1	—	1	2	1	1	1	1	—	—
District of the Mississippi.....	3	2	1	1	—	1	—	3	—	2	1	—
<i>Gunshot Wounds*</i>	1	1	1	2	1	—	1	4	—	3	3	2
Total cases.....20												
District of New England.....	—	—	—	—	—	—	—	1	—	—	—	—
Northern Atlantic District.....	1	1	—	—	—	—	—	—	—	—	—	—
Middle Atlantic District.....	—	—	—	—	—	—	—	—	—	1	1	—
Southern Atlantic District.....	—	—	—	—	—	—	1	1	—	—	—	—
District of the Gulf.....	—	—	—	—	1	—	—	1	—	—	—	—
District of the Pacific.....	—	—	—	—	—	—	—	—	—	—	—	1
District of the Great Lakes.....	—	—	1	1	—	—	—	—	—	—	1	—
District of the Ohio.....	—	—	—	1	—	—	—	1	—	2	1	1
District of the Mississippi.....	—	—	—	—	—	—	—	—	—	—	—	—
<i>Fractures*</i>	25	15	25	20	17	21	14	25	9	15	18	22
Total cases.....271												
District of New England.....	5	—	1	3	2	4	2	2	2	—	1	—
Northern Atlantic District.....	6	5	3	—	7	5	1	4	1	3	1	7
Middle Atlantic District.....	3	2	5	3	2	1	1	2	1	3	3	1
Southern Atlantic District.....	3	—	—	2	1	2	3	1	—	—	3	3
District of the Gulf.....	1	—	5	1	2	4	2	7	3	2	1	3
District of the Pacific.....	1	—	2	1	1	—	1	3	1	2	—	1
District of the Great Lakes.....	3	5	5	8	2	1	2	3	—	4	7	5
District of the Ohio.....	1	2	2	—	—	2	1	1	1	—	1	2
District of the Mississippi.....	2	1	2	2	—	2	1	2	—	—	1	—

Injuries treated during the Year ended June 30, 1874—Continued.

NUMBER OF CASES TREATED EACH MONTH.											
1873.						1874.					
July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
5	2	3	1	1	4	7	5	6	3	1	1
8	7	5	1	3	2	3	2	1	...	7	8
1	1	1	1	1	1	1	4	3	8	6	6
2	1	1	1	1	1	1	...	...	...	1	1
10	17	18	15	11	12	17	12	19	16	19	20
1	2	1	1	1	...	1	1	2	2	4	1
...	1	1	2	1	...	...	...	1	1	1	...
4	5	4	3	...	...	1	1	1	...	...	1
...	1	2	3	2	3	3	2	...	1	2	3
2	...	1	1	...	3	7	4	6	4	6	2
...	...	1	1	1	...	1	1	1	1	1	1
...	1	...	1	2	1	...	...	...	...	...	1
2	3	2	1	3	4	3	3	6	5	1	4
1	4	6	2	1	1	1	...	2	2	4	7
...
1	1	1	1	1	3	3	2	2	4	4	5
1	...	...	...	...	...	1	...	...	...	...	...
...	...	...	...	...	1	1	...	1	1	1	1
...	...	...	1	...	1	1	...	...	...	...	2
...	1	1	...	...	...	...	...	...	...	1	2
...	...	...	...	1	1	...	2	1	3	2	...
15	20	16	16	11	15	12	19	21	23	16	16
2	2	...	2	1	...	...	...	1	...	...	...
3	4	5	3	3	3	...	1	3	2	...	...
3	3	...	2	3	4	4	6	4	5	5	4
...	1	1	1	...	...	...	...	1	3	...	...
...	1	3	3	2	1	2	3	2	1	1	3
...	2	2	1	...	2	2	3	4	4	2	2
3	2	2	1	1	1	...	...	1	1	3	4
1	2	1	1	1	3	3	3	2	3	1	1
3	3	2	2	...	1	1	3	3	4	4	2
...
2	3	4	3	3	3	3	6	6	5	7	7
...
1	2	2	1	1	1	1	1	1	...	...	...
...	...	...	...	...	...	...	...	...	1	2	...
...	...	...	...	...	...	1	2	2	...	...	...
...	...	...	...	1	1	1	2	2	1	1	1
...	...	1	1	...	...	...	...	...	...	1	1
...	...	...	1	1	1	...	1	1	3	3	4
1	1	1	...	...	...	...	...	...	...	...	...
70	52	61	58	53	56	48	60	55	46	43	50
10	4	4	5	6	9	6	6	8	4	3	1
12	14	13	9	11	12	7	11	9	7	4	7
10	6	10	7	7	5	6	7	7	6	5	4
6	3	1	2	3	5	5	6	6	3	4	7
2	...	5	5	6	7	6	9	12	11	7	8
8	6	8	6	3	2	2	4	4	6	4	2
15	12	11	17	12	8	7	8	4	5	11	16
4	4	4	3	1	3	4	3	2	3	3	4
3	3	5	4	4	5	5	6	3	1	2	1

INJURIES.

Injuries.

<i>Sprains*—Continued.</i>											
District of the Pacific.											
District of the Great Lakes.											
District of the Ohio.											
District of the Mississippi.											
<i>Incised Wounds:*</i>											
Total cases.....108											
District of New England.											
Northern Atlantic District.											
Middle Atlantic District.											
Southern Atlantic District.											
District of the Gulf.											
District of the Pacific.											
District of the Great Lakes.											
District of the Ohio.											
District of the Mississippi.											
<i>Punctured Wounds:*</i>											
Total cases.....19											
District of New England.											
Northern Atlantic District.											
Southern Atlantic District.											
District of the Gulf.											
District of the Great Lakes.											
District of the Ohio.											
<i>Lacerated Wounds:*</i>											
Total cases.....104											
District of New England.											
Northern Atlantic District.											
Middle Atlantic District.											
Southern Atlantic District.											
District of the Gulf.											
District of the Pacific.											
District of the Great Lakes.											
District of the Ohio.											
District of the Mississippi.											
<i>Gunshot Wounds:*</i>											
Total cases.....20											
District of New England.											
Northern Atlantic District.											
Middle Atlantic District.											
Southern Atlantic District.											
District of the Gulf.											
District of the Pacific.											
District of the Great Lakes.											
District of the Ohio.											
District of the Mississippi.											
<i>Fractures:*</i>											
Total cases.....271											
District of New England.											
Northern Atlantic District.											
Middle Atlantic District.											
Southern Atlantic District.											
District of the Gulf.											
District of the Pacific.											
District of the Great Lakes.											
District of the Ohio.											
District of the Mississippi.											

V.—Tabular Statement, by Months and Districts, of Diseases and

INJURIES.	NUMBER OF CASES ADMITTED EACH MONTH.											
	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Injuries.												
<i>Dislocations*</i>	1	3	4	2	4	.....	3	2	3	4	4	5
Total cases.....												
39												
District of New England.....			1	1	.....	.....	.....	1	2	2	1	.....
Northern Atlantic District.....		1	.....	.....	.....	.....	.....	1	1	2	2	2
Middle Atlantic District.....		1	2	.....	1	.....	.....	.....	.....	.....	.....	2
Southern Atlantic District.....			.....	.....	1	.....	2	.....	.....	.....	.....	.....
District of the Gulf.....		1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
District of the Pacific.....			1	1	2	.....	.....	.....	.....	.....	.....	.....
District of the Great Lakes.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
District of the Ohio.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....

VI.—Relative Proportions of Diseases and Injuries, and of given Diseases and Injuries.

1. Proportion of Diseases and of Injuries, per hundred, of all Cases treated:

	<i>Per cent.</i>		<i>Per cent.</i>
Diseases.....	88. 49	Injuries.....	11. 51

2. Proportion of given Diseases, per thousand, of all Diseases treated:

Diseases.	Per 1,000 of all cases treated.	Diseases.	Per 1,000 of all cases treated.
GENERAL DISEASES.....	574.167	DISEASES OF THE DIGESTIVE SYSTEM.....	110.253
Small-pox.....	2. 169	Tonsillitis.....	3. 643
Measles.....	1. 561	Pharyngitis.....	2. 082
Dengue.....	3. 210	Gastritis.....	3. 990
Cerebro-spinal fever.....	1. 041	Dyspepsia.....	6. 246
Enteric fever.....	14. 573	Enteritis.....	1. 908
Yellow fever.....	9. 022	Dysentery.....	20. 992
Ague.....	130. 465	Hernia.....	2. 255
Remittent fever.....	83. 536	Diarrhœa.....	47. 797
Simple cholera.....	1. 128	Fistula in ano.....	2. 169
Malignant cholera.....	. 867	Hæmorrhoids.....	4. 424
Erysipelas and pyæmia.....	9. 367	Peritonitis and ascites.....	2. 429
Rheumatism.....	97. 849	Hepatitis.....	3. 990
Syphilis.....	166. 204	Jaundice.....	2. 689
Cancers.....	1. 041	All other diseases of this group..	5. 639
Tumors.....	2. 082	DISEASES OF THE URINARY SYSTEM.....	49.445
Phthisis pulmonalis.....	30. 187	Bright's disease, acute.....	2. 602
Other scrofulous affections.....	2. 863	Bright's disease, chronic.....	4. 771
Scurvy.....	5. 118	Cystitis.....	4. 250
Anæmia.....	2. 863	Gonorrhœa and complications.....	20. 212
Dropsy.....	3. 036	Stricture of urethra.....	12. 405
All other diseases of this group..	5. 985	All other diseases of this group..	5. 205
DISEASES OF THE NERVOUS SYSTEM.....	32.009	DISEASES OF MALE ORGANS OF GEN- ERATION.....	23.248
Inflammation of the brain.....	1. 041	Orchitis.....	17. 436
Sunstroke.....	1. 561	All other diseases of this group..	5. 811
Paralysis.....	6. 680	DISEASES OF ORGANS OF LOCOMOTION.....	10.409
Epilepsy.....	1. 735	Of the bones.....	6. 853
Neuralgia.....	16. 568	Of the joints.....	2. 949
Insanity.....	. 867	All other diseases of this group..	. 607
All other diseases of this group..	3. 557	DISEASES OF THE CELLULAR TISSUE.....	23.248
DISEASES OF THE EYE.....	12.405	Inflammation.....	. 607
Conjunctivitis.....	4. 685	Abscesses.....	22. 641
Ophthalmia.....	2. 169	DISEASES OF THE CUTANEOUS SYSTEM.....	52.394
Iritis.....	3. 036	Eczema.....	2. 516
All other diseases of this group..	2. 515	Frostbite.....	4. 164
DISEASES OF THE EAR.....	1.561	Ulcers.....	31. 575
DISEASES OF THE NOSE.....	.347	Whitlow.....	8. 154
DISEASES OF THE CIRCULATORY SYSTEM.....	12.665	All other diseases of this group..	5. 985
Valve disease, heart.....	4. 944	DEBILITY.....	5.638
All other diseases of the heart.....	4. 598	POISONS.....	7.460
Diseases of blood-vessels.....	3. 123	Alcohol.....	2. 429
DISEASES OF THE ABSORBENT SYSTEM AND DUCTLESS GLANDS.....	2.602	Delirium tremens.....	3. 817
DISEASES OF THE RESPIRATORY SYSTEM.....	81.715	All other cases of this group....	1. 214
Bronchitis.....	38. 862	HUMAN PARASITES.....	.434
Asthma.....	3. 904		
Pneumonia.....	23. 595		
Pleurisy.....	7. 634		
All other diseases of this group..	7. 720		

3. Proportion of given Injuries, per hundred, of all Injuries treated:

Injuries.	Per 100 of all cases treated.	Injuries.	Per 100 of all cases treated.
Burns and scalds.....	3. 47	Wounds, incised.....	7. 20
Concussion of brain.....	1. 00	Wounds, punctured.....	1. 27
Contusions.....	49. 00	Wounds, lacerated.....	6. 93
Sprains.....	9. 13	Wounds, gunshot.....	1. 33
Dislocations.....	2. 60	Fractures.....	18. 07

VII.—Tabular Statement, by Months and Districts, of Causes of Mortality, &c.—Continued.

DISEASES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
General Diseases.												
SECTION B—Continued.												
<i>Morbus Coxæ.</i>										1		
Total deaths.....1												
District of the Gulf.....										1		
<i>Scurvy</i>				1								
Total deaths.....1												
District of New England.....				1								
<i>Anæmia</i>												1
Total deaths.....1												
Northern Atlantic District.....												1
<i>General Dropsy</i>		1	1								3	
Total deaths.....5												
District of the Great Lakes.....											1	
District of the Ohio.....		1	1								2	
Local Diseases.												
<i>Diseases of the Brain and Nervous System</i>	4	4	2			3	2	1	1	3	1	1
Total deaths.....22												
<i>Inflammation of Brain</i>	1	1	1			1			1	1		
Total deaths.....6												
Middle Atlantic District.....						1						
District of the Gulf.....	1		1									
District of the Pacific.....									1	m 1		
District of the Ohio.....		1										
<i>Abscess of Brain</i>						1						
Total deaths.....1												
Northern Atlantic District.....						n 1						
<i>Congestive Apoplexy</i>	1									1		
Total deaths.....2												
Southern Atlantic District.....	1											
District of the Gulf.....										1		
<i>Sanguineous Apoplexy</i>											1	
Total deaths.....1												
District of the Pacific.....											1	
<i>Sunstroke</i>	1	1										
Total deaths.....2												
District of New England.....		1										
District of the Gulf.....	1											
<i>Hydrocephalus</i>	1											
Total deaths.....1												
District of the Ohio.....	1											
<i>Paralysis</i>		2	1			1	2	1		1		1
Total deaths.....9												
District of New England.....		2				1		1				
Northern Atlantic District.....										1		
District of the Gulf.....												1
District of the Pacific.....			o 1				2					
DISEASES OF THE HEART AND BLOOD-VESSELS.	4	1		3	2	1	2	1	4	3	3	3
Total deaths..... 27												
<i>Pericarditis</i>					1							
Total deaths..... 1												
District of the Pacific.....					1							

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.*—Continued.

DISEASES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Dropsy of the Pericardium.</i>	2											
Total deaths.....	2											
District of the Ohio.....	2											
<i>Valve Disease of Heart.</i>		1		2	1	1	1	1	4	3	2	2
Total deaths.....		18										
District of New England.....		1										
Northern Atlantic District.....				1		1		1		1		1
Middle Atlantic District.....									1	p2		
Southern Atlantic District.....							q1					
District of the Gulf.....					1				1		1	1
District of the Pacific.....									2		1	
District of the Mississippi.....				1								
<i>Hypertrophy.</i>												1
Total deaths.....												1
District of the Great Lakes.....												1
<i>Fatty Degeneration of Heart.</i>							1					
Total deaths.....							1					
District of the Gulf.....							1					
<i>Heart Disease, (not specified)</i>	1			1							1	
Total deaths.....	3											
Middle Atlantic District.....	1			1								
District of the Gulf.....											1	
<i>Aneurism of Aorta.</i>	1											
Total deaths.....	1											
District of the Great Lakes.....	r1											
DISEASES OF THE RESPIRATORY SYSTEM.....		4	5	4	3	5	11	7	5	6	8	5
Total deaths.....		63										
<i>Bronchitis</i>		2	2	1	1		3	3		1	3	
Total deaths.....		18										2
District of New England.....								2				1
Middle Atlantic District.....				1								
Southern Atlantic District.....		1										
District of the Gulf.....		1	2				1			1	2	
District of the Pacific.....							1					
District of the Great Lakes.....					1		1					1
District of the Mississippi.....								1			1	
<i>Asthma</i>			1	1			1					
Total deaths.....		3										
District of the Gulf.....							1					
District of the Great Lakes.....			1									
District of the Ohio.....				1								
<i>Pneumonia.</i>		2	1	2	1	4	4	4	3	2	5	2
Total deaths.....		30										
District of New England.....				1	1	1	1	1		1		
Northern Atlantic District.....							2	1	1		2	s1
Middle Atlantic District.....						1						
Southern Atlantic District.....									1			
District of the Gulf.....		1					1	t2				
District of the Pacific.....						1						
District of the Great Lakes.....		1	1			1					3	1
District of the Ohio.....				1								
District of the Mississippi.....									1	1		
<i>Congestion of the Lungs</i>					1		2					
Total deaths.....		3										
District of the Gulf.....					u1		1					
District of the Ohio.....							1					

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.*—Continued.

DISEASES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Hæmoptysis</i>			1				1			1		1
Total deaths.....			4									
Northern Atlantic District							1					
District of the Pacific			1									
District of the Great Lakes										1		
District of the Ohio												1
<i>Pleurisy</i>									2	1		
Total deaths.....			3									
Southern Atlantic District									2	v1		
<i>Empyema</i>						1				1		
Total deaths.....			2									
Northern Atlantic District										w1		
District of the Great Lakes						x1						
DISEASES OF THE DIGESTIVE SYSTEM.	8	5	8	10	6	5	6	1	3	4	8	3
Total deaths.....	67											
<i>Pharyngitis</i>			1									
Total deaths.....			1									
Middle Atlantic District			1									
<i>Gastritis</i>	1	2									1	
Total deaths.....			4									
District of New England		1										
District of the Ohio		1									1	
District of the Mississippi	1											
<i>Dyspepsia</i>	1								1	1		
Total deaths.....			3									
District of New England	1											
District of the Gulf										1		
District of the Ohio									1			
<i>Enteritis</i>			1				1				2	
Total deaths.....			4									
Northern Atlantic District			1									
District of the Gulf							1				1	
District of the Great Lakes											1	
<i>Dysentery</i>	3		2	6	1		1		1		1	1
Total deaths.....			16									
Middle Atlantic District	2										1	
District of the Gulf							1					
District of the Great Lakes				1								
District of the Ohio			1	3					1			1
District of the Mississippi	1		y1	2	1							
<i>Perforation of Intestine</i>	1			1								
Total deaths.....			2									
District of the Pacific	z1											
District of the Ohio				aa1								
<i>Intestinal Fistula</i>							1					
Total deaths.....			1									
District of the Great Lakes							1					
<i>Obstruction of Intestine</i>						1						
Total deaths.....			1									
Middle Atlantic District						1						
<i>Strangulated Hernia</i>						1						
Total deaths.....			1									
Southern Atlantic District						1						
<i>Diarrhœa</i>	2	3	3	3	5	3	2		1	2	2	2
Total deaths.....			28									
Northern Atlantic District				1					1		1	

VII.—*Tabular Statement, by Months and Districts, of Causes of Mortality, &c.—Continued.*

DISEASES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Local Diseases.												
<i>Diarrhœa</i> —Continued.												
Middle Atlantic District.....	1		1			1						1
Southern Atlantic District.....						1	1					
District of the Gulf.....	1	1	1	2	2	1	1			1	1	
District of the Ohio.....					1							
District of the Mississippi.....		2	1		2					1		1
<i>Fistula in Ano</i>												
Total deaths.....	1									1		
District of the Gulf.....										1		
<i>Hepatitis</i>												
Total deaths.....	1										1	
Middle Atlantic District.....											1	
<i>Splenitis</i>												
Total deaths.....	1						1					
District of the Gulf.....							bb 1					
<i>Peritonitis</i>												
Total deaths.....	2											
District of New England.....			cc 1								1	
<i>Ascites</i>												
Total deaths.....	1											
District of the Pacific.....								1				
DISEASES OF THE URINARY SYSTEM..												
Total deaths.....	2		1	3		1			1	3	2	1
<i>Chronic Bright's Disease</i>												
Total deaths.....	1			3		1			1	3	2	1
District of New England.....						1						
Northern Atlantic District.....				3						1		
Middle Atlantic District.....	1									1		
Southern Atlantic District.....										1		
District of the Gulf.....									1			
District of the Great Lakes.....											1	
District of the Ohio.....											1	
<i>Abscess of the Kidney</i>												
Total deaths.....	1											
District of New England.....	1											
<i>Cystitis</i>												
Total deaths.....			1									
District of New England.....			1									
DISEASES OF THE ORGANS OF LOCO-												
MOTION.....		1	1		1							
Total deaths.....												
<i>Necrosis</i>												
Total deaths.....		1										
District of the Gulf.....		1										
<i>Psoas Abscess</i>												
Total deaths.....			1									
District of the Great Lakes.....			1									
<i>Spine Disease, (not specified)</i>												
Total deaths.....					1							
District of New England.....					1							

VII.—Tabular Statement, by Months and Districts, of Causes of Mortality, &c.—Continued.

POISONS AND INJURIES.	1873.						1874.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Poisons.												
Total deaths .....5	1	1	1					2				
<i>Alcohol</i>			1					1				
Total deaths.....2												
Northern Atlantic District.....			1									
District of the Ohio.....								1				
a. <i>Delirium Tremens</i>	1	1						1				
Total deaths.....3												
District of the Gulf.....		1						1				
District of the Mississippi.....	1											
Injuries.												
Total deaths ...10	1			1	2	1		2	1			2
<i>Burns and Scalds</i>	1											1
Total deaths.....2												
District of the Pacific.....												1
District of the Great Lakes.....	1											
<i>Concussion of the Brain</i>					1	1		1				
Total deaths.....3												
District of New England.....								1				
Middle Atlantic District.....					1							
Southern Atlantic District.....						1						
<i>Fracture of the Vault of the Skull</i>								1				
Total deaths.....1												
District of the Great Lakes.....								1				
<i>Fracture of the Base of the Skull</i>					1							
Total deaths.....1												
Northern Atlantic District.....					dd 1							
<i>Incised Wound of Chest</i>									1			
Total deaths.....1												
District of the Ohio.....									1			
<i>Fracture of the Spine</i>				1								
Total deaths.....1												
District of the Great Lakes.....				1								
<i>Contusion of the Testicles</i>												1
Total deaths.....1												
District of the Great Lakes.....												1
<i>Unknown</i>												
Total deaths.....1												
Southern Atlantic District.....							ee 1					

a Admitted for bronchitis.

b Complication: diarrhœa.

c "Pernicious intermittent fever."

d Following compound fracture.

e Following lacerated wound.

f Following gunshot wound.

g Heart and brain affected.

h Admitted for diarrhœa.

i Complication: erysipelas. (?)

j Admitted for bronchitis.

k Admitted for fistula in ano.

l Admitted for ague; died from exhaustion.

m Followed by effusion.

n Following fracture of the skull.

o From abscess of the brain.

p Admitted for bronchitis.

q Complication: phthisis pulm.

r Admitted for secondary syphilis.

s Complication: diarrhœa.

t Admitted for remittent fever.

u Admitted for ague.

v Admitted for bronchitis.

w Complication: pneumœnia.

x Complication: chronic pleurisy.

y Attended with ulceration of the rectum.

z Complication: double diaphragmatic hernia.

aa Admitted with dysentery; peritonitis and perforation of the intestines supervened.

bb Complication: hypertrophy of the spleen.

cc Complication: erysipelas.

dd Accompanied by effusion.

ee The patient died before surgical aid reached him

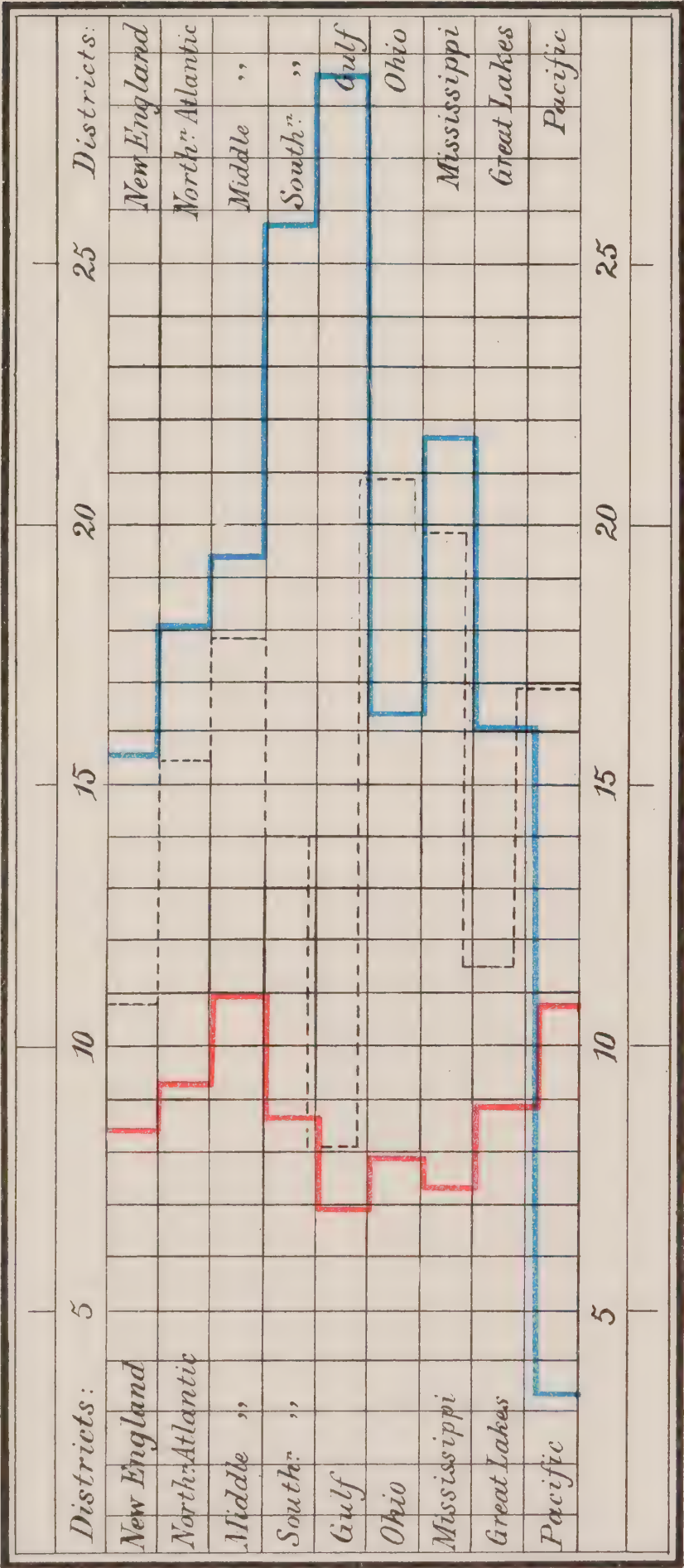
VIII.—Ratio of Deaths from Specific Causes.

Deaths from—	Per cent. from all causes.	Deaths from—	Per cent. from all causes.
GENERAL DISEASES	53.08	DISEASES OF THE CIRCULATORY SYS- TEM.....	6.14
Small-pox.....	1.97	Valve-disease of the heart.....	3.94
Cerebro-spinal fever.....	.66	Other diseases of this group....	2.20
Enteric fever.....	6.80	DISEASES OF THE RESPIRATORY SYS- TEM.....	13.82
Yellow fever.....	8.78	Bronchitis.....	3.94
Ague.....	2.41	Pneumonia.....	6.58
Remittent fever.....	7.90	Other diseases of this group....	3.30
Malignant cholera.....	1.53	DISEASES OF THE DIGESTIVE SYS- TEM.....	14.91
Diphtheria.....	.44	Dysentery.....	3.50
Erysipelas.....	1.09	Diarrhœa.....	6.36
Pyæmia.....	.88	Other diseases of this group....	5.05
Rheumatism.....	1.54	DISEASES OF THE URINARY SYS- TEM.....	3.07
Secondary syphilis.....	.88	Bright's disease.....	2.63
Cancers.....	.88	Other diseases of this group....	.44
Phthisis pulmonalis.....	15.35	INJURIES AND ALL OTHER CAUSES...	4.16
Other scrofulous affections.....	.44		
Scurvy.....	.22		
Anæmia.....	.22		
General dropsy.....	1.09		
DISEASES OF THE NERVOUS SYSTEM...	4.82		
Inflammation of the brain.....	1.32		
Paralysis.....	1.97		
Other diseases of this group.....	1.53		

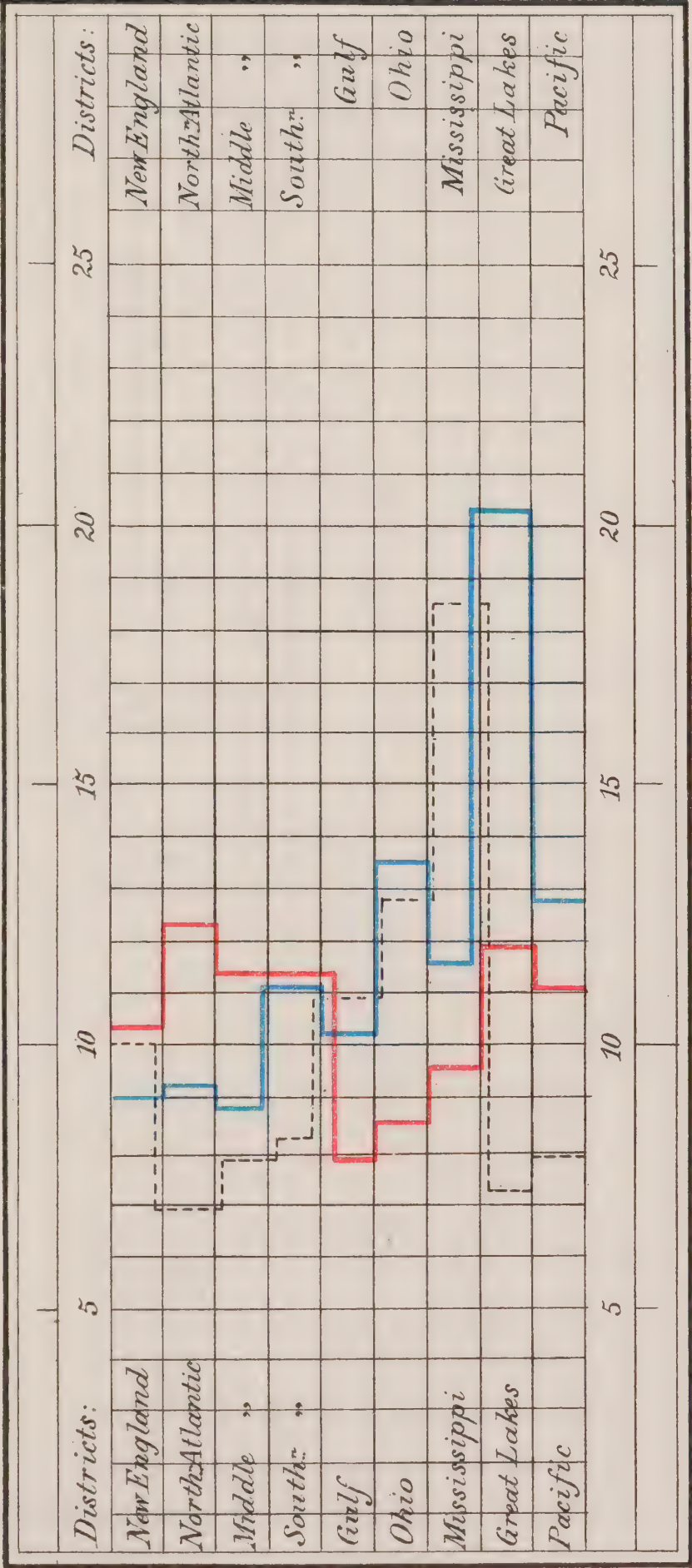
IX.—Exhibit, by Months, of Extent and average Duration of hospital Relief, prevalent Diseases, and Rate and prevalent Causes of Mortality.

MONTHS.	Number of patients under hospital treatment.	NUMBER OF DAYS' HOS- PITAL RELIEF FURNISHED.		Prevalent Diseases.	MORTALITY RATE.			Prevalent Causes of Death.
		Total.	Average per patient.		Actual number of deaths.	Per 100 patients treated.	Per cent. of total deaths during the year.	
1873.								
July	1,854	29,447	15.8	Malignant fevers ...	46	2.48	10.18	Malarial diseases.
August	2,023	32,300	16.0		45	2.22	9.96	Do.
September	2,256	32,562	14.4		62	2.79	13.72	Yellow fever.
October	2,176	35,702	16.4		49	2.25	10.80	Do.
November.....	2,093	35,763	17.1		30	1.43	6.64	
December.....	2,265	40,385	17.8		31	1.48	6.86	
1874.								
January	2,232	42,495	19.0	Consumption and diseases of the respiratory system.	36	1.61	7.97	
February	2,056	35,466	17.2		29	1.41	6.42	
March.....	1,839	31,153	16.9		30	1.63	6.64	
April.....	1,653	26,845	16.2		35	2.12	7.75	
May.....	1,754	28,059	16.0		33	1.88	7.31	
June.....	1,831	28,262	15.4		26	1.42	5.75	
Monthly average.	2,003	33,203	16.5		38	1.89	8.33	

A.—Number of Cases of Ague and Remittent Fever, Rheumatism, and Syphilis, per 100 of the total number of Cases of all Diseases and Injuries treated in each District during the Year ended June 30, 1874.



B.—Number of Cases of Phthisis Pulmonalis and Diseases of the Respiratory System, Diseases of the Digestive System, and Injuries, per 100 of the total number of Cases of all Diseases and Injuries treated in each District during the Year ended June 30, 1874.



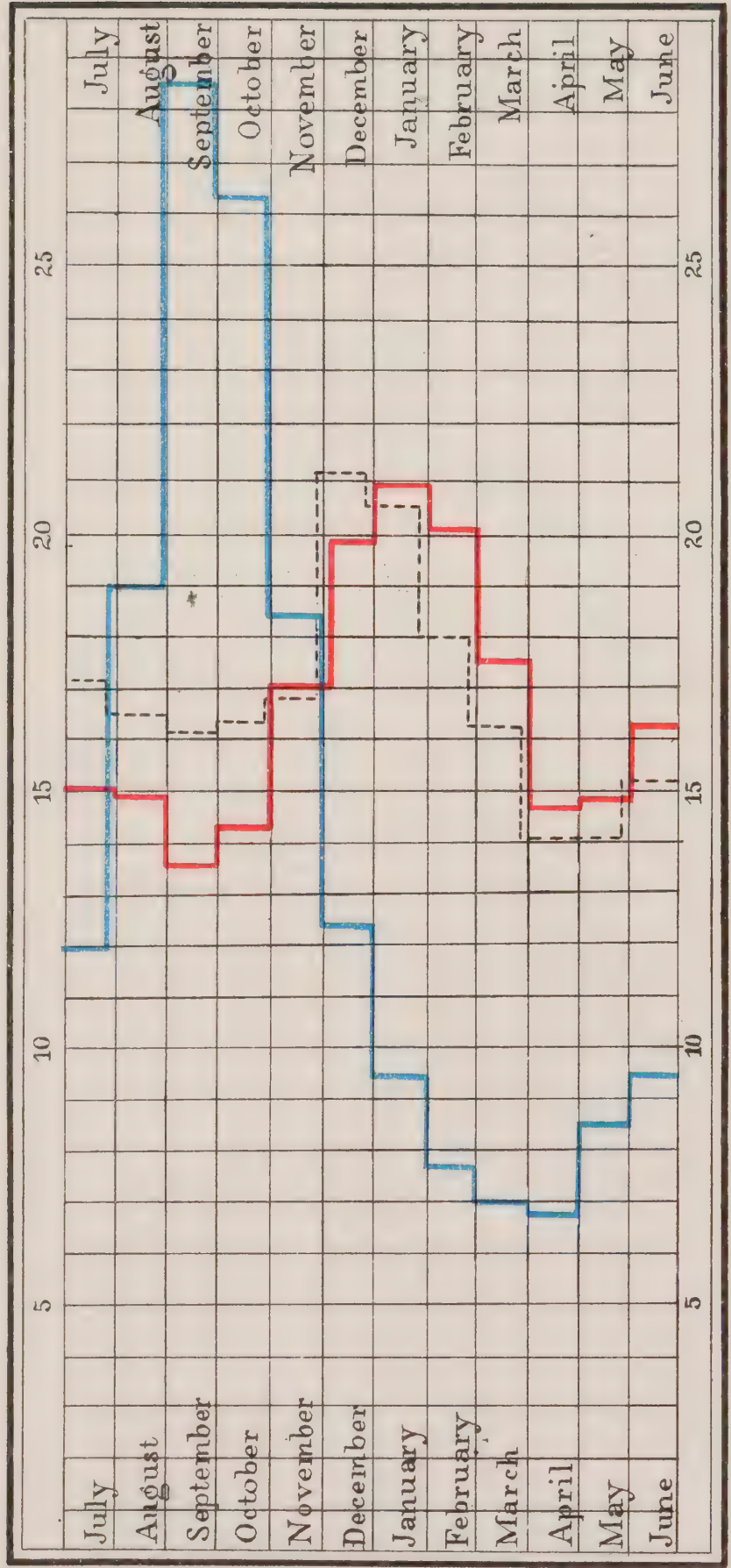
N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

PHTHISIS PULMONALIS AND DISEASES OF THE RESPIRATORY SYSTEM.

--- DISEASES OF THE DIGESTIVE SYSTEM.

— INJURIES.

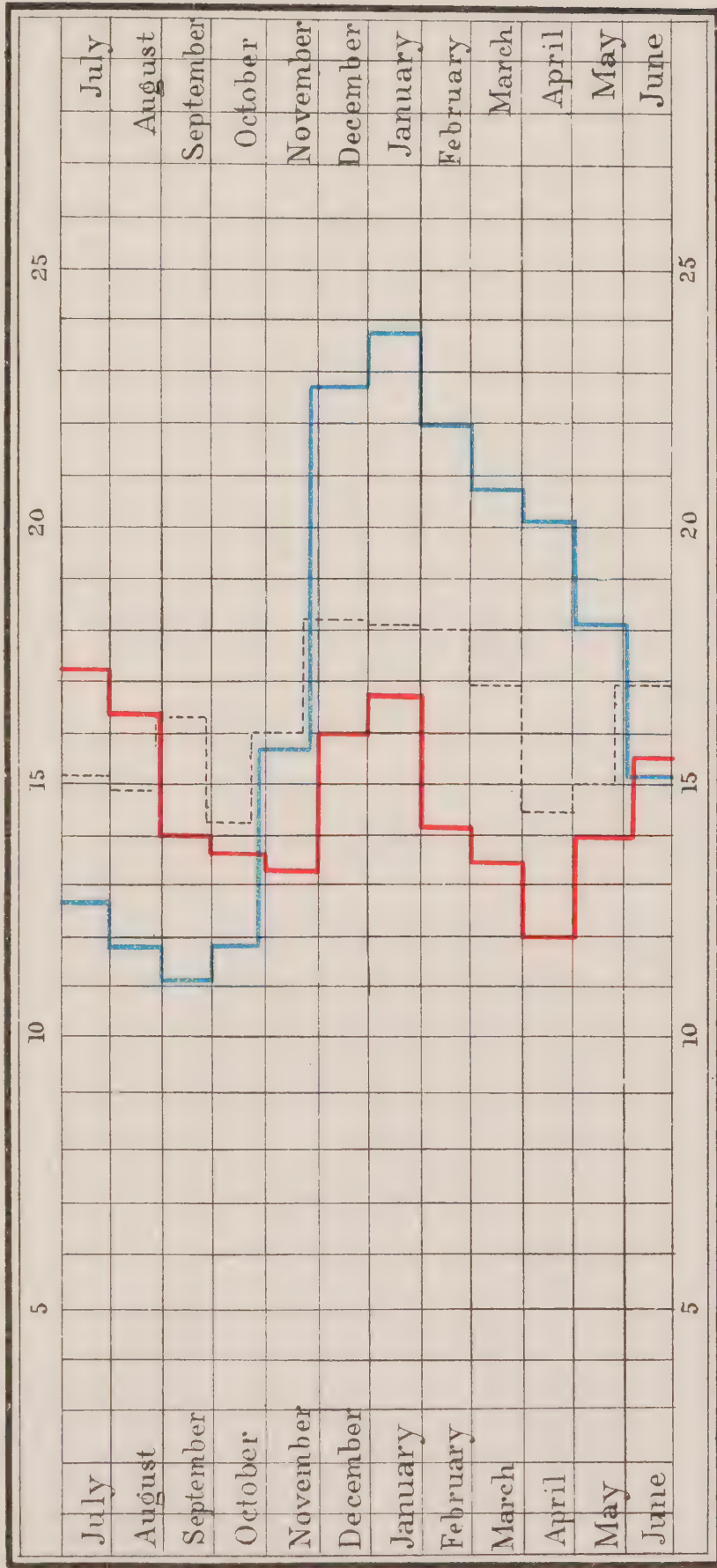
C.—Number of Cases of Ague and Remittent Fever, Rheumatism, and Syphilis, treated each Month, per 100 of the total number of Cases of each treated during the Year 1873-74.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

— AGUE AND REMITTENT FEVER.
 — RHEUMATISM.
 --- SYPHILIS.

D.—Number of Cases of Phthisis Pulmonalis and Diseases of the Respiratory System, Diseases of the Digestive System, and Injuries, treated each Month, per 100 of the total number of Cases of each treated during the Year 1873-74.



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— PHTHISIS PULMONALIS AND DISEASES OF THE RESPIRATORY SYSTEM. ——— DISEASES OF THE DIGESTIVE SYSTEM. - - - - - INJURIES.

APPENDIX.

COMMENTS AND NOTE.

BY THE SUPERVISING SURGEON.

COMMENTS UPON THE MEDICAL AND SURGICAL STATISTICS OF THE SERVICE.

THE absence of uniformity in the registration of diseases, and the consequent restricted usefulness of the vast masses of hospital reports, vital statistics, &c., annually published, are matters with which the profession, both in this country and abroad, is thoroughly familiar, but for which, until recently, no adequate remedy had been devised. The preparation and publication of a Provisional Nomenclature of Diseases, under the auspices of the Royal College of Physicians, (London,) its general adoption in Great Britain, and its quasi endorsement by the profession in this country, give promise that in the near future the published observations of medical men will have an increased value, and an approach to scientific accuracy, in the assurance that their use of terms is uniform, and that the terms themselves have a positive and accepted meaning. With such end in view, this provisional nomenclature has been adopted as the nosological system to be observed by medical officers of the Service in their reports and communications; and the results of its use during the current fiscal year are sufficiently pronounced to warrant the belief that statistics of disease among sailors will, in the future, be of practical benefit in helping to determine the effects of seafaring pursuits upon health and life, and thus contribute to the study and progress of preventive medicine.

A wider range in the duration of treatment at the various ports than is indicated in Table IX of these Statistics will be found to exist on examining Table C of the financial and economic series. In the former table the minimum duration is in the Northern Atlantic District—27.9 days; and the maximum in the District of the Pacific—37.9 days. On reference to Table C, however, it will be seen that at the port of New York—the principal port of the district, and in charge of an officer directly responsible to the Supervising Surgeon—the average duration of treatment was only a little over seventeen days; while it was 37, 40, 44.2, 51.2 and 61 days, respectively, at Tuckerton, Sag Harbor, Middletown, Ogdensburg, and Bargaintown, in the same district, and under similar conditions in all respects, except as to frequent inspection by such an officer as that at the port of New York. On the other hand, in districts where the average duration was less than in that of the Pacific, the duration of treatment at some of the more important ports

of such districts was above the duration of treatment at San Francisco; as, for instance, at Wilmington, N. C., in the Southern Atlantic, the duration of treatment was nearly fifty-three days, and at Mobile, in the District of the Gulf, it was over sixty-one days. Nothing in the character of the cases, nor in the prevalent diseases, sufficiently explains these wide variations. The causes are to be sought for in the conditions which have been dwelt upon in the Report proper,^(a) and these figures strongly emphasize the necessity for some such remedy as is therein suggested.

Notwithstanding the occurrence of two epidemic diseases—yellow fever and malignant cholera—during the period embraced by this report, the mortality rate of the Service for the year ended June 30, 1874, is remarkably low. No data are obtainable for purposes of comparison prior to the fiscal year 1871; but during that year the mortality rate was 3.75 per cent.; during 1872, it was 3.94 per cent.; during 1873, it was 5.09 per cent.; while during the past year, it was only 3.58 per cent. This reduction is the more noteworthy, because a greater discrimination is now exercised in admitting patients to hospital than formerly—a constantly increasing proportion of applicants being prescribed for and furnished medicines, or surgical treatment and appliances, without sending to hospital. The result of this course is necessarily to increase the average gravity of hospital cases; and an increased, instead of a reduced death-rate might not unnaturally have been looked for.

The excessive mortality of 1873, however, was due to small-pox, from which cause alone there occurred 131 deaths, or over twenty per cent. of the total number. During the past year there were only twenty-five cases, and nine deaths from this disease, forming less than two per cent. of the total mortality; and the proportion of deaths to cases shows also a less malignant and fatal form of the disease in 1874 than in 1873—the ratio of deaths to cases in the latter year being about forty-seven per cent., as against thirty-six per cent. in the former year. On the appearance of the disease at a port where a medical officer of the Service is stationed, it is his duty to vaccinate all unprotected applicants for relief; and, at the request of a master of a vessel, to vaccinate, if need be, the entire crew. It is not pretended that this can have yet exerted any appreciable influence upon the disease; but there can be no doubt that, with proper co-operation on the part of officers of vessels, the Service is entirely competent to eliminate this loathsome pestilence from the merchant marine.

Among the more prevalent diseases during the year were malarial

^a See *ante* "Port Inspections and Office Duties," page 9.

fevers, rheumatism, and syphilis; these three comprising 47.79 per cent., or nearly one-half of all the diseases treated. They furnish, however, only 12.73 per cent. of the total mortality, phthisis alone, with a proportion of only 3.01 per cent. of all diseases treated, causing 15.35 per cent. of the total mortality. The malarial fevers—ague and remittent, in the proportion of about six to four—occurred most frequently in the District of the Gulf, where they formed nearly twenty-nine per cent. of all cases; while in the District of the Pacific they were only a little over three per cent. Their maximum prevalence was in September and their minimum in April. Rheumatism does not show such fluctuations either in districts or seasons, ranging only from about seven per cent. in the Districts of the Gulf and the Mississippi to less than eleven per cent. in the North Atlantic and the Pacific; and from a minimum of thirteen and one-half per cent. in September to about twenty-one per cent. in January. The mortality from rheumatism is reported at only about one and one-half per cent. of the total mortality; but from causes previously mentioned it is probable that this rate is too low.

Venereal diseases furnish, as usual, the largest proportion of all the cases treated—18.64 per cent. of all cases being due to syphilis (16.62 per cent.) and gonorrhœa, (2.02 per cent.,) in the proportion of eighty-two per cent. of syphilis to the total number of all venereal cases.—It should be here remarked that this preponderance of syphilis over gonorrhœa is due, in part, to the fact that simple, uncomplicated cases of the latter disease are rarely admitted to marine-hospital treatment.—Though these figures exceed those given in Dr. Sturgis' paper,^(a) it is known that they do not fairly represent the extent either of the prevalence of these diseases or of their influence upon the course of other diseases. Almost without exception the cases reported as cystitis, stricture, orchitis, and other diseases of the groups to which these belong—and amounting to about four and one-half per cent. of all cases—are syphilitic or gonorrhœal, and would swell the total venereal to about twenty-three per cent.; while a large proportion of the cases of rheumatism, diseases of the skin, the eye, the bones and joints, &c., are due to, or are complicated with, the syphilitic cachexia. The appended papers sufficiently discuss the potency and widely-spread influence of the syphilitic poison, and the protean forms it presents itself under in marine-hospital wards.

Over fifteen per cent. of the total deaths in marine-hospitals was due to pulmonary phthisis; and when to this is added the mortality from

^a The Scourge of the Sailor—Syphilis—and the Public Health, by FRED. R. STURGIS, M. D.

bronchitis, pneumonia, and other diseases of the respiratory organs—over ten and one-half per cent.—the importance of such special study of the conditions of sea-life in their bearing upon these diseases, as is suggested by Surgeon Heber Smith's Hygiene of the Forecastle, and other of the subjoined papers, is apparent. Rosewood fittings, Axminster carpets, and silver plate in the captain's cabin; and darkness, foul air, and moisture in the fore-castle, are incongruities which jar on the senses of even the laic observer; but these conditions in the fore-castle are crimes against hygiene which pay heavy penalties in increased sickness and consequent expense, in short-handed and short-lived crews, and, not seldom, in shipwreck of cabin and fore-castle, captain and crew, in common.

That such an eminently preventable disease as scurvy should still find a place in the annual returns to the extent that it does,^(a) more particularly upon the Pacific coast, would seem to call for some further legislation than that contained in the Shipping Commissioners' Act of 1872. By that act (Sec. 4569 of The Revised Statutes) vessels are required to be provided with a sufficient quantity of lime or lemon juice, and also sugar and vinegar, or other anti-scorbutics. But aside from requiring (Sec. 4564, *ibid.*) vessels bound on voyages across the Atlantic Ocean to carry 60 gallons of water, 100 pounds of salted flesh meat, and 100 pounds of wholesome ship bread for every person on board such vessel, there is no adequate legislation as to the quantity or quality of the provisions for the crews. This would be the less deprecable if shipmasters could be made to understand that "it can be proved that an anti-scorbutic and nutritious diet can be provided for the crews of ships at less cost than the salt provisions still in common use; and it is as easy to demonstrate that we might then safely do away with all special anti-scorbutics, and should, at the same time, very much improve the sanitary condition of our sailors at sea."^(b)

In the surgery of the Service, nothing of unusual interest has been reported; but it may be noted that, although erysipelas and pyæmia were more frequent in the hospital wards than during 1873, the mortality from these causes was less, being 12.2 per cent. in the latter year and 8.3 per cent. in 1874; that in operations requiring the use of anæsthetics, the relative frequency of employment of chloroform was 52 per cent., of ether 35 per cent., and of chloroform and ether combined 13 per cent.; that Esmarch's bloodless method has been

^a In 1872 there were 66 cases reported, 47 of which were on the Pacific coast; in 1873 there were 47 cases, 27 of which were on the Pacific; in 1874 there were 59 cases, 45 of which were on the Pacific, 14 being from foreign and 31 from American vessels.

^b The Lancet.

successfully employed, and is favorably spoken of, as is also the use of the aspirator for a variety of purposes; and that a judicious conservatism, in which the advantages to the patient of the principle of “the least sacrifice of parts” is duly recognized, influences generally the character of operative interference.

It should be added, in explanation of Table IX, that the discrepancy therein shown, viz., an increase in the number of patients treated, and in the duration of treatment during the winter months, while the death rate is, at the same time, markedly reduced, is due to the fact that, on the approach of inclement weather and the close of navigation, many chronic cases, fit for some kind of service during the warm months, apply for, and are admitted to treatment, thus reducing the average gravity of all cases. On the approach of spring these cases are discharged, or leave voluntarily, and the proportionate mortality immediately rises. This is shown more clearly by the accompanying diagrams, where it is seen (C and D) that cases of rheumatism and syphilis—the chief sources of the chronic patients—increase about twenty-five per cent. during the winter months, as compared with the milder months immediately before and after; and that there is an increase of over eighty-eight per cent. in the admissions for phthisis, bronchitis, &c., during the period from November to February, inclusive, as compared with the period from July to October. This latter class of cases, it is also seen, continues to keep up its increased average for a longer period than do the cases of rheumatism and syphilis. On the other hand, cases of injuries, which are for the most part caused in actual service, appear as frequently in June as in February, the slight increase—less than one and one-fourth per cent.—during the three winter months being occasioned by the conditions of service with ice-covered decks, frozen sails, rigging, &c.

NOTE ON THE CONTRIBUTED PAPERS.

A FIELD peculiarly his own presents itself to the medical officer of the Marine-Hospital Service who takes a broad view of subjects and is capable of distinguishing their correlations; of tracing, *ex gr.*, the effect of seafaring pursuits upon the production, modification, or limitation of diseases; of discerning the bearing of the physical, social, and economic conditions of these pursuits upon their followers; of dealing with the problems of marine sanitation, hygiene, and preventive medicine, and of lucidly setting forth the facts and deductions therefrom, for the prevention, amelioration, or remedy of the causes of the degeneracy of our sailors; in short, of bringing his special knowledge to bear upon the general subject for the general good. With a view to directing effort in this direction, and of attracting the attention of the Corps to these opportunities, the Supervising Surgeon, about the close of the fiscal year, addressed a communication to its members, in which it was suggested that the medical periodical seemed to be the more fitting place for the technical treatment and exposition of strictly medical and surgical topics, rather than the pages of an annual report.

It was further suggested that a class of subjects, rarely treated of in purely medical literature, and of interest to other than strictly professional circles, might legitimately and profitably be discussed in an official document; and that in such an one as that of a Service charged with the care of the physical condition of seamen it seemed peculiarly appropriate to furnish information concerning (1) the diseases and injuries specially incident to seafaring pursuits; (2) the effect of such pursuits upon the production, modification, or limitation of given diseases; (3) the physical, social, and economic conditions and relations of the sailor; (4) the unseaworthiness of sailors as a result of (*a*) originally defective *materiél*, (*b*) faulty hygienic conditions afloat and ashore, (*c*) other causes; (5) the local conditions affecting the Service at various ports; (6) special studies, such as the effects on health of service on iron and on wooden vessels; racial influences as affecting the frequency or manifestation of disease; the importation of epidemic diseases by sailors; the spread of contagious diseases by them, &c.

In some cases, where it was believed special facilities existed for treating given topics, these were specifically indicated, as, for instance, Diseases of the Respiratory Organs, as affected by Seafaring Life—

The Local Conditions of the Service on the Coast of Maine—Prevalent Diseases of New England Seamen, &c., were suggested for the New England District: Hygiene in the Forecastle—The Unseaworthiness of Sailors—American Commerce and the Service, &c., were suggested for the Northern Atlantic District: The Importation of Epidemic Diseases by Seamen (with especial reference to yellow fever)—Prevalent Diseases on the Gulf Coast—Points of Contrast between Patients from the Ocean and the Mississippi Valley, &c., were suggested for the Gulf District: The Effects of Emancipation upon Colored Boat-hands—The Freedman and the Service on the Ohio—Contagious Diseases among River-men, &c., were suggested for the Districts of the Ohio and the Mississippi: Preventable Disease among Lake Sailors—The Surgery of the Service, &c., were suggested for the District of the Great Lakes.

In response to that communication the papers herewith presented have been received and, it is thought, make a fair beginning in the direction indicated. The subjects treated of, though with much in common, naturally group themselves into two classes—those relating to the Service in its dealings exclusively with the sailor, and those relating to the Service in its connection with the public health, as affected by or through the sailor; and to this latter class it is desired to attract especial attention, as treating of matters of growing and vital general importance.

THE HYGIENE OF THE FORECASTLE.

THE HYGIENE OF THE FORECASTLE.

BY HEBER SMITH, M. D.,

Surgeon United States Marine-Hospital Service, New York, N. Y.

IN a previous report upon the state of the Marine-Hospital Service, and the conditions which affect the American merchant sailor at this port,^(a) my remarks were confined to the conditions and influences affecting the sailor ashore; their result in lowering the physical standard of our merchant marine; their agency in the production of otherwise avoidable shipwreck and loss of life; and their bearing, both immediate and remote, upon the demand for hospital relief. In this paper it is proposed to consider some of the influences and conditions which affect the sailor afloat, by extending the inquiry to his home upon the water; and the hope is entertained that by presenting, however imperfectly, some at least of the grosser violations of sanitary law under which the men before the mast exist on board ship, that first step will have been taken towards remedy which consists in exploiting the evils to be corrected. Such hope, it may not improperly be added, is warranted by the partial reforms of abuses ashore which the former paper has already been in some measure instrumental in securing.

We often hear from the lips of "old salts" that there are no sailors now-a-days; meaning thereby that the typical American seaman exists only in tradition. That there is truth in the lament, and that the marine-hospital surgeon has not far to seek for the causes of this decadence, the brokendown wrecks of humanity that throng the approaches to our marine hospitals and the lamentable average of sailors' seagoing lives—now estimated at less than twelve years—make ready answer. English writers, in seeking for the causes that contributed to the success of our arms at sea in the struggle with the Mother Country, have declared that "it was not the seamanship and fighting qualities of our sailors alone that carried us triumphantly through," but rather greater strength and energy of men and better sanitation, resulting in reduced sickness and mortality; and further, that if the same death rate in their navy had continued during the French revo-

^a "The Sailor and the Service at the Port of New York."—*Annual Report of the Supervising Surgeon U. S. Marine-Hospital Service for 1874: Washington, D. C.*

lutionary war, seamen would no longer have been procurable, and their famous victories would never have been achieved.^(a) Should the same test be applied to-day, and should our Navy now, as then, be recruited from the men of the merchant marine, there can be little doubt that the score upon the page would read differently.

In proceeding to the study of the sailor's surroundings while on the water—of the air he breathes between decks, the food he eats, the water he drinks, and the clothes he wears, and their influence upon his health and usefulness—our attention will first and most naturally be directed to the hygienic condition of the forecastle, the sailors' apartment in the house afloat. And in this connection, there should be considered a question of vital importance both to the sanitarian and to the citizen, namely, the part sailors play in the propagation of disease.

While the ocean is the great highway of commerce, it is also the great highway of disease; and those who frequent its trackless paths too often become veritable highwaymen, robbing not only individuals but communities of that which is dearest to them, by developing and propagating diseases which are thoroughly preventable by the simplest sanitary observances.

The forecastle of the ship is to this hour *the* neglected point of sanitary police. The absence of effective measures of protection to seamen, notwithstanding the more or less earnest efforts made in that direction, has become proverbial; but it is particularly noticeable in regard to sanitary requirements, because in this respect sailors are so helpless, and the demand for interference is so urgent. Sailors are not brought under sanitary observation as they should be. They come and go. No one cares for them but to use them for the advancement of selfish purposes; and thus it happens, in the ordering of an inexorable logic, that the public weal is jeopardized by the wrongs that the whole world has knowledge of, but still looks upon with indifference and neglect.

The dissemination of cholera, small-pox, typhus, yellow, and relapsing fevers, and particularly of venereal diseases, in all their varied forms, is, probably, more to be dreaded from sailors flitting about from port to port, than from all other sources. It is indisputable that no outbreak of cholera has occurred in this country that has not been imported here in ships, and that the same is true of yellow fever.

When relapsing fever, that scourge of the poverty-stricken centres of the old world, first made its appearance in this country as a recognized disease, namely, in Philadelphia in 1844, it was shown conclusively to have been brought in Irish emigrant vessels; and, as showing

^a Naval Hygiene, by ALBERT H. GIBON, Medical Inspector U. S. Navy.

the important part sailors played in the dissemination of the same disease when it visited this city in 1869 and 1870, the following extract from the report of Prof. Stephen Smith, made to the New York Board of Health in the latter year, is most significant :

It [relapsing fever] was also discovered at 332 Water street, 337 First avenue, and in the forecastle of the steamboat *Bridgeport*.^(a) A careful examination of these latter cases proved very conclusively that the steamboat employés contracted the fever at 59 Cherry street. One of the steamboat hands lodged at No. 332 Water street, and communicated the fever to the family. On the night of his relapse the sailor lodged with the family of his sister at No. 337 First avenue, and after the usual period of incubation, fever appeared in this family, and five persons suffered.

What an agency sailors have been in propagating venereal diseases, is told in the early history of the New World, from the time that Spanish sailors first infected the natives of the West Indies, up to the eighteenth and nineteenth centuries, when whole tribes were almost entirely swept from many of the South Sea Islands, by a disease unknown among them until the arrival of European navigators.

What sailors are to-day in propagating venereal diseases may be partly shown from the records of this office. From August, 1871, to October, 1874, out of a total of 6,075 patients treated, 1,436 were affected with venereal diseases, being over twenty-five per cent. And even this record is incomplete, for the reason that many sailors are treated for these diseases by physicians in private practice, or "drug-store doctors" prescribing for them over their counters, many of them receiving no treatment whatever. Thus, while it is true that many come under observation at a later period with aggravated symptoms, the fact is still patent that considerably more than one-fourth of the diseases of seamen at this port are of venereal origin.

But this is a problem too vast and complicated for discussion within the limits of this paper. It is not in diseases which involve moral sanitation also, but rather in those in which physical hygiene alone may be of avail, that there is much of promise at the present time.

When the guardians of the public health may by authority "be present at the building of the ship to modify its construction ; in the hold where the cargo is stowed to insure cleanliness ; on the upper decks to secure light, air, and convenience ; at the embarkation to enforce personal ablution, and other preparation for the voyage ; on the passage to guard against unforeseen dangers, and to correct the errors of indo-

^a See cut, and description of this forecastle, on p. 114.

lence;”(a) and, when they may be in the fore-castle first, last, and all the time, to watch over and prevent its inmates from infecting each other and those among whom they may be thrown when they are at length brought to their desired haven—when all these things shall have been accomplished, we may then gird up our loins for an attack upon this Pandora’s box of disease, by whose widespread, all-pervading reign medical skill, social science, and vital statistics are all and equally set at naught.

For a graphic portrayal of the sailor as a sanitary subject, I know of none better than is given in this report of Dr. Judson’s: “The reckless habits and vagrant propensities of seafaring men, as well as the unsanitary condition of the portions of the city in which they lodge, make them peculiarly liable to become the medium for the spread of contagious and infectious diseases. The services rendered by the sailor to commercial and national prosperity, his exposure to danger and suffering, his romantic and generous disregard of self, and his freedom from domestic and conventional restraints—points in his character and history that have thoroughly enlisted the philanthropist in his behalf—are so many reasons why his sanitary condition should be faithfully studied.”

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“The diseases and deaths that are witnessed at the Seamen’s Retreat, and among the sailors admitted to the New York and Brooklyn city hospitals, are probably, in a very large proportion of cases, the sad results of careless and sinful living.(b) To give the homeless sailors of our port friendly recognition, and the evidences of human sympathy, is to give them much-needed moral support and protection against numerous and preventable forms of sickness and death.

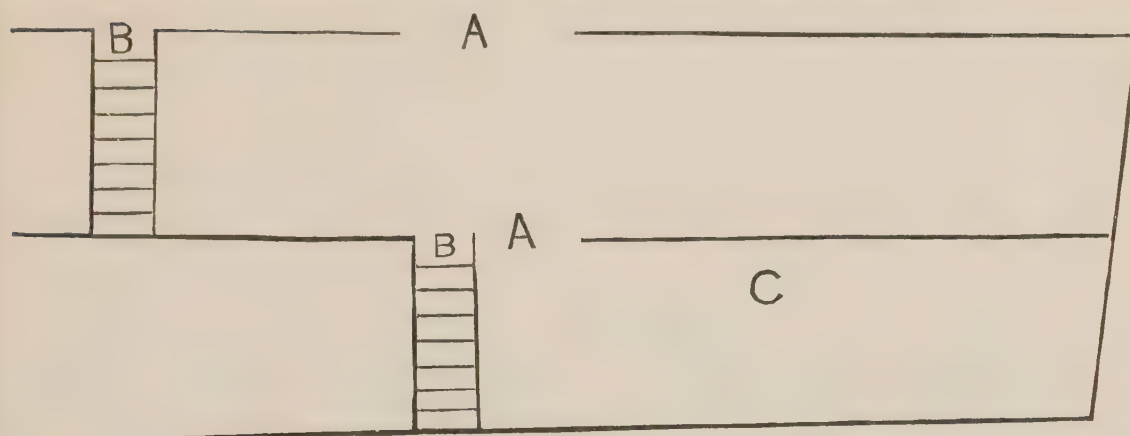
“The sickness rate among seamen is probably greatly augmented by the want of light and air; and by the presence of dampness and filth so often observed in the fore-castles of even the largest and best equipped sailing and steam-vessels. The following notes from my inspections of emigrant vessels will present some of these sanitary defects:

“Steamship *Helvetia*, 3,327 tons. Lower fore-castle twenty-seven feet from stem to bulkhead; twenty-four feet in width at bulkhead; seven and a half feet between decks. Light and air admitted by a hatch six by four feet, and two air ports, each nine inches in diameter, and which are closed at sea; occupied by twenty-eight men in two watches. Very dark; wet from leaky deck; air close and offensive.

a A. B. Judson, M. D., “Report upon Sanitary Condition of the Waterside and Seamen.”—*Report of Metropolitan Board of Health, New York*, 1869, pp. 142-151.

b “Out of our whole mortality list, consisting of seventy-seven in number, I can single out but ten cases which afforded anything like a fair chance for the successful exhibition of remedies; the balance were in such a wretched state when admitted, induced by starvation and criminal brutality and neglect on board, or by drunkenness and every species of sensual excess on shore, that little or nothing could be done for them.”—*Report of Dr. Moffatt, Physician-in-Chief of the Seamen’s Retreat*, 1856.

SECTION OF FORECASTLE OF S. S. HELVETIA.

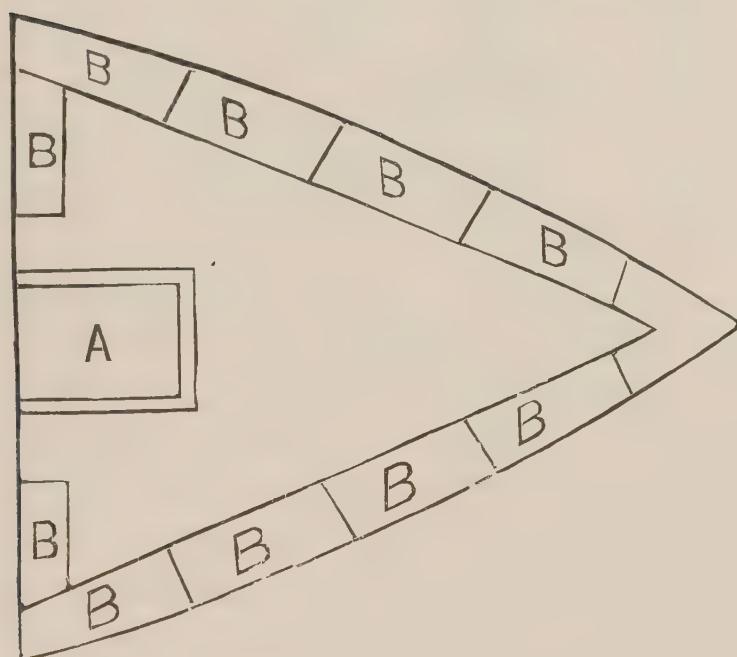


A...Hatchway.

B...Companion ladder.

C...Lower forecastle.

PLAN OF LOWER FORECASTLE, S. S. HELVETIA.



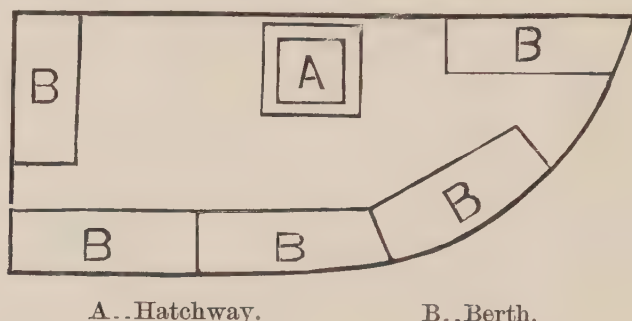
A...Hatchway.

B...Berth.

'Steamship *City of Antwerp*, 1,625 tons. Upper forecastle. Sailors' quarters on the port side, approached by a narrow and circuitous passage by stooping under a portion of the anchor machinery. Light and air admitted by passage of entrance; a four-inch stove-pipe hole, and five air-ports, open only in smooth weather; occupied by twenty-two men in two watches. Dark and damp; air close and offensive; berths, bulkheads, and deck, in a dirty condition. The firemen's quarters, on the starboard side, are similar to those of the seamen on the port side, but exposed to the further annoyance and offense of proximity to the passengers' water-closets.

'Ship *Constantine*, 1,280 tons. Lower forecastle for starboard and port watches; twenty-three feet from stem to bulkhead; ten feet wide at bulkhead; seven feet between decks. Companion way steep and difficult. Light and air admitted by companion hatch, thirty inches square, and two air-ports closed at sea. Ten berths in two tiers. Dark and damp; air close, and charged with ammoniacal odors. Bulkheads and berths black for want of scrubbing. Deck slippery with filth.

PLAN OF STARBOARD FORECASTLE OF SHIP CONSTANTINE.



‘To neglect the sanitary care of a ship’s company shows a want of foresight which is not in keeping with the vaunted thrift of successful business men. Short voyages, the preservation of spars and rigging, and the safety of costly ships and human lives, depend in a fair degree on the physical condition of the crew. The ship-owner who wishes to guard his ventures against disaster by the use of all reasonable precautions, must shelter his crew in light, clean, and airy quarters, and take a personal interest in the treatment of the men. In the hundreds of total wrecks and disappearances occurring annually, if the actual truth in each case were ascertained and acknowledged, it is reasonable to suppose that an alarming proportion is due to the reduction of the working power of the crew by unhealthy quarters, unreasonable overwork, and in some cases, by maltreatment.’”

This paragraph, published in 1869, may justly entitle Dr. Judson to the credit of having been among the first to call attention to the important subject of the commercial value of the seaworthiness of sailors, a theme which has of late years, and notably since Mr. Plimsoll’s agitation of the matter, attracted so much attention both at home and abroad.

I desire to supplement Dr. Judson’s description of forecastles by a description and illustration of two that I have found in my inspections, remarkable in two respects: first in showing the manner in which men are stowed away in the least desirable places on board ship, while their comfort and the preservation of their health is made secondary to the preservation of the contents of the sail-room, carpenter’s shop, and boatswain’s locker;^(a) secondly, in showing the overcrowding and ridiculously inadequate means of ventilation provided upon some of the most gorgeous specimens of Sound and river boats, which have been likened to painted harridans—beautiful only in spots.

Ship *Surprise*, of New York; China trade; 1,005 tons; twenty-two years old; rebuilt eight years ago. Topgallant forecastle twenty-three

^a The following is the text of the English law upon this subject: “Every place in any ship occupied by seamen and apprentices, and appropriated to their use, shall have a space of not less than nine superficial feet for every adult, measured on the deck or floor of such space, free from goods, properly constructed, and well ventilated.”

Our statute books define the limits of space which shall be allowed immigrants, but I am not aware that any such provision has ever been made for our sailors.

feet from stem to bulkhead; sixteen feet wide at bulkhead; six feet between decks. This space encroached upon by anchor machinery and water-closets, the latter three and one-half by two and one-half



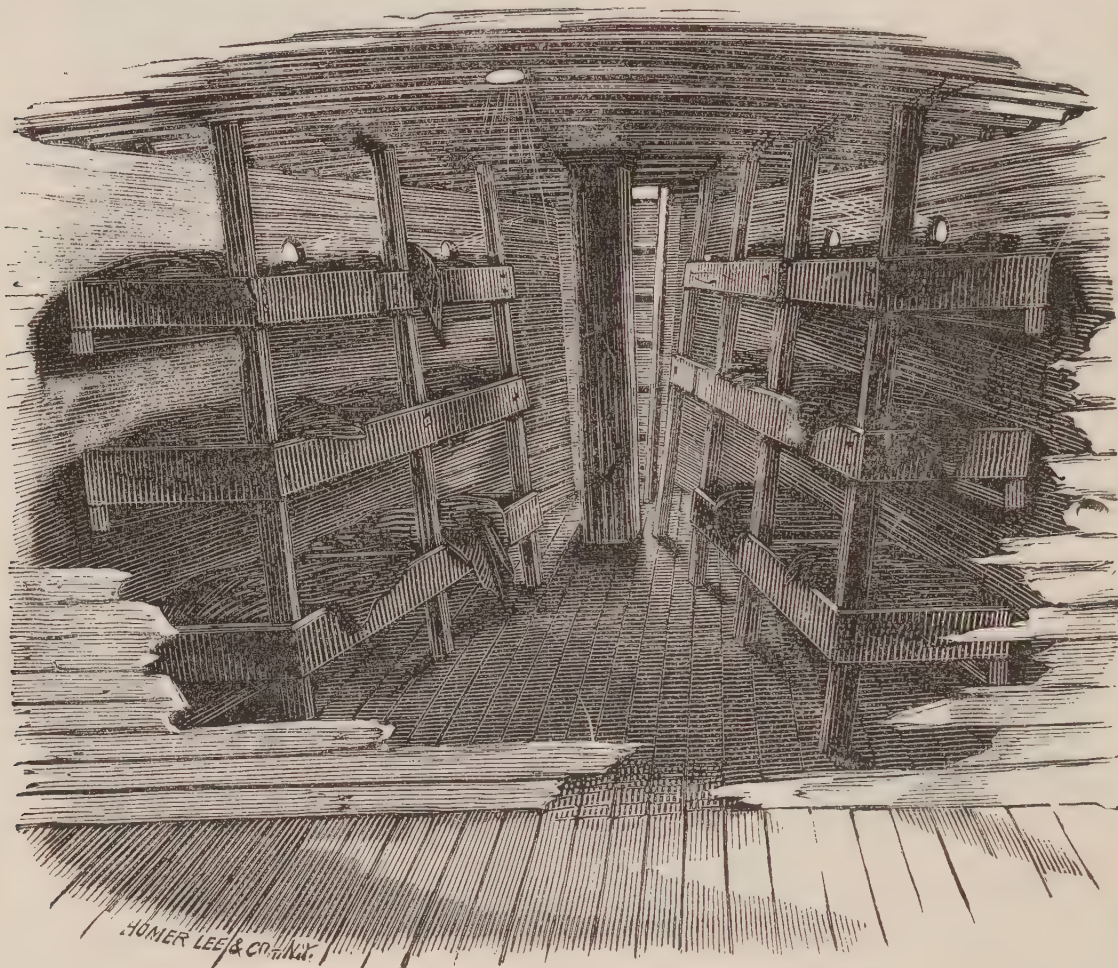
FORECASTLE OF THE SHIP SURPRISE.

feet on each side; nine berths on a side; two five-inch air ports. In heavy weather the men's chests were sometimes washed out on deck by sea coming in hawse-holes. This ship has ample accommodation for all her men in a house on deck, which is occupied, in the order named, as cook's room, galley, boatswain's locker, sail-room, carpenter's and sailmaker's room, third mate, and boys.

Steamboat *Bridgeport*, sixteen years old, plying between New York and Bridgeport. Forecastle between decks forward, extending from stem to bulkhead, a distance of twenty-seven feet; width at bulkhead, twenty-one feet four inches; height between decks, seven feet; twenty bunks, arranged eight on one side, six on the other, and six against bulkhead; four six-inch air-ports and a five-inch stove-pipe hole one

foot forward of the bulkhead. The only entrance through a hatch, three feet six inches by two feet, situated as far forward as possible.

The forecastle of the *Bridgeport* is one of the best of its class, the cubic space per man being about one hundred feet. In the forecastle of one steamboat inspected (the *Continental*) the cubic space per bunk was found to be less than fifty feet, with less adequate means of ventilation than the *Bridgeport* possessed. The forecastles of all this class



FORECASTLE OF THE STEAMBOAT BRIDGEPORT.

of vessels afford illustrations of Dr. Billings' idea of the desire that must have governed the men who planned some of our prisons, namely, to see in how small a space human life could be maintained. They also illustrate the bottle plan of ventilation; for, when it is considered that the air-ports must be closed when under way, and that in rough weather the hatch also must be covered, we have the bottle complete, even to the cork. ^(a)

^a It is easily demonstrated that between three and four hundred cubic feet of air pass through the lungs every hour; and three thousand cubic feet per hour is a minimum amount fixed by one authority on the subject for the requirement of the lungs and skin for the maintenance of health. It follows, then, that one occupant of this forecastle, the hatch being closed, would render the air unfit for respiration several times over in an hour. What must be the condition of things after twenty or even ten men have been confined for an hour in such a hole? And should we not expect relapsing fever and typhus poison to be much more common than they are? It will hardly be claimed by any one that a gale of wind blowing in that hatch, and another equally powerful blast blowing out of the same opening at the same time, would suffice to change the atmosphere rapidly enough to supply to each occupant the thirty or forty cubic feet of fresh air per minute which physiology teaches to be necessary for the maintenance of health. Under such circumstances, the study of the tolerance of noisome

Having dwelt so long upon the dark side of the picture, the average sailor's home upon the water, the contrast may be presented in the following sketches of vessels recently inspected. The first, the ship *Ocean King*, is new, never having made a voyage. She is a splendid specimen of marine architecture, surpassed in tonnage by but one ship in the American merchant marine. Her forecastle is in a house upon the main deck, extending from the main hatch to the foremast, divided by a longitudinal bulkhead into two apartments, one for each watch. The length of each room is 18 feet, width 10 feet 3 inches, height 6 feet 10 inches. There are two windows, about two feet square, and a door upon each side. There are ten bunks in each compartment, and a stove. The cubic space allotted to each man in this forecastle is about 120 feet, which is nearly double the space required by the English law.

The schooner *R. M. Brockings*, Captain A. J. Brown, is an additional illustration of what has been done in the effort to ameliorate the condition of seamen afloat, and is here cited, not so much as an example that can be put into immediate practice upon all vessels, as to show what may be accomplished by earnest effort, not alone by captains and owners, but by seamen as well. This vessel, with a company of eight souls, all told, was found to have no forecastle at all, in the ordinary acceptation of that term, a portion of the cabin being given up to the men before the mast. The room was comfortably fitted with berths, a stove, table, with books and writing material upon it, and the bulkheads were adorned with pictures. All messed together, and the captain had his wife on board.

In speaking of the advantages of this system of treating sailors like human beings, the captain said it was no longer an experiment, but had been practised by him ever since he left the forecastle for the cabin. He required a smaller crew to manage his vessel, and secured a better class of men. They remained on board in port, thus avoiding the demoralizing influences of the boarding-house. The "fostering care" of the shipping commissioner was not required, as there was not the constant shipping and discharging of men usual upon vessels. There had not been a change in the *personnel* of his crew in eight months, and some of his men had been with him two years. The evils of the advance-note system were unknown, as his men obtained their money whenever they wanted it *after* it was earned. It was economical for

atmosphere which the human system is susceptible of acquiring becomes interesting. The truth is, there are too many differences of opinion even yet on the subject of ventilation. More experiment and study are required. We should not see, as in some hospitals, two or three systems to meet conflicting opinions, in the hope that one or the other may meet the requirements of the case, being unable to decide which was founded upon correct mechanical or physiological laws. One set contend that carbon di-oxide is chiefly to be feared, and that openings for the escape of foul air should be near the floors, while others contend that the air, warmed by respiration and contact with the body, rises to the ceiling, carrying animal impurities, which are chiefly to be feared, with it, and should be allowed to escape through openings near the top of the apartment.

the ship in many ways; but one mess had to be provided for, and the men took pride in the vessel, and in keeping her and all her appointments in good order. But one thing seemed required in this vessel to make it the sailor's ideal of a ship, and that was a pecuniary interest in her.

The man who demonstrates by actual practice a way for the effectual and permanent elevation of seamen, is worthy of all honor. May the example of this good captain be speedily and generally followed by others, to the end that the race of true, honorable, manly seamen may not become extinct. The difficulties in the way of the improvement of the sailor's condition have hitherto proved insurmountable; the downward pressure has been altogether too great; the fetters have been too tightly bound for his own unaided efforts to shake off. Are there not other true friends to lend this good captain a hand at the line which is drawing so powerfully upward?

Of the old-fashioned between-decks' forecastles still found upon old vessels, it may be said that they are simply miniature Black Holes of Calcutta. Their ventilation is precisely such as would be obtained in a bottle, for the only serviceable opening is through a small hatch cut in the deck, from thirty to thirty-six inches square. There are no fore and aft openings; and if there are two or three air-ports in the sides of the vessel, they seem to be there for effect only, as they are always closed. The use of wind-sails seems to be unknown upon merchant vessels, as they are never seen in this latitude, except upon men-of-war.

Of late years, the practice of building forecastles between decks has gradually given place in sailing vessels to the better plan of sheltering the crew in a house built upon the upper or spar deck, thus insuring light and airy quarters for the men. This improvement is due more to the requirement of space between decks for cargo than to anything else. The forecastles of steamers are still usually between decks, but much more attention is given to ventilation than formerly, and the greater space between decks, and greater height of steamers' bows out of the water, allow increased cubic capacity to the forecastles, and also permits the opening of the air-ports. Bathing facilities for the engineer department is a new feature in many first-class steamships.

The advantages of having the men sheltered in houses built upon the deck are so many and so obvious that it is not necessary to enumerate them. I will dwell a moment upon one of them, however, as being more likely to be overlooked. Dr. Gihon, in his work on Naval Hygiene, previously quoted, in opening his chapter on Humidity, uses the following language:

The great danger the sailor encounters is *water*. Not the mighty deep he traverses, on whose wide waste he is but an indistinguishable speck, and from whose depths he is only separated by a few inches of plank. It is not the water without his vessel that imperils his life, so much as that within it—that which saturates his clothes and bedding, fills the air he breathes, and, creeping in wherever that air can enter, permeates the very tissue of the wood of which his ship is built. This is his enemy; terrible because unseen, powerful because denied; depreciated, and therefore unresisted. Fewer lives are lost by shipwreck than by the operations of this subtle agent. Man's skill has mastered the fury of the ocean. He is able to oppose its storms and currents and go upon its surface as he lists; but he makes no attempt to combat this insidious slayer.

And Fonssagrives, also quoted by Gihon as "the greatest authority on naval hygiene," formulates the experience of all the authors who have written on the diseases of seamen, Rouppe, Lind, Poissonnier-Despérières, Kéraudren, Raoul, &c., in the following words: *Qui dit bâtiment très humide, dit bâtiment malsain*. This danger, so graphically portrayed, is in a great measure obviated by the house upon deck, exposed as it is upon five of its surfaces to the influence of the sun and external air.

While on the one hand steam-vessels have wrought a great revolution in transportation by water, the change for the better, as regards the physical well-being of the men, has been none the less marked. Shortened voyages, better food and water, and a dwelling-house upon deck, are among the more important blessings conferred upon "poor Jack" by the "great disorganizer," as a famous naval hero was wont to call steam. The advantage resulting from having the voyage shortened one-third or one-half needs no elucidation. What I conceive to be the greatest gain of all to the sailor from the introduction of steam-vessels is the improved food and water which he is enabled to obtain. Steamers almost invariably carry passengers. It has always been the policy of the managers of steam lines seeking a large passenger traffic to relieve the tedium of the voyage as much as possible by the pleasures of the table, and great rivalry exists between different lines, and even between different vessels of the same line. The food being provided in such abundance, it naturally follows that the sailors get a share of it, and to this cause, with the shortening of the voyage, is due the almost total disappearance of scurvy from men serving on steamers.

The shipping act of 1872, besides requiring all vessels making long sea voyages to carry a supply of lime juice, also provides for a daily ration; as follows:

Scale of provisions to be allowed and served out to the crews of merchant vessels, prescribed by shipping act, 1872.

	Bread.	Beef.	Pork.	Flour.	Peas.	Tea.	Coffee.	Sugar.	Water.
	Pounds.	Pounds.	Pounds.	Pounds.	Pints.	Ounces.	Ounces.	Ounces.	Quarts.
Sunday	1	1½	1¼	½	⅓	⅓	⅓	2	3
Monday	1	1½	1¼	½	⅓	⅓	⅓	2	3
Tuesday	1	1½	1¼	½	⅓	⅓	⅓	2	3
Wednesday	1	1½	1¼	½	⅓	⅓	⅓	2	3
Thursday	1	1½	1¼	½	⅓	⅓	⅓	2	3
Friday	1	1½	1¼	½	⅓	⅓	⅓	2	3
Saturday	1	1½	1¼	½	⅓	⅓	⅓	2	3
Weekly allowance..	7	6	3¾	1	1	7⁄8	3½	14	21

[Here any stipulation for changes or substitution of one article for another may be inserted.]

One ounce of coffee or cocoa or chocolate may be substituted for one-quarter ounce of tea; molasses for sugar, the quantity to be one-half more; one pound of potatoes or yams, one-half pound flour or rice; one-third pint of peas or one-quarter pint of barley may be substituted for each other. When fresh meat is issued, the proportions to be two pounds per man per day in lieu of salt meat. Flour, rice, and peas, beef and pork may be substituted for each other, and for potatoes onions may be substituted.

The trouble with the shipping-act ration is that it is not enforced. The law makes no provision for inspections of food, or inquiry as to whether the men receive the food prescribed for them or not. It was intended probably to be a part of the shipping commissioner's duty to see that the law in this particular was complied with, but as there were no fees connected with this part of the duty, it has been entirely neglected.

It has been proposed to substitute for this the ration of the United States Navy, which is far preferable, both in quantity and variety, as will be seen by a comparison of the two.

The following is the component part of the United States Navy ration for each day of the week:

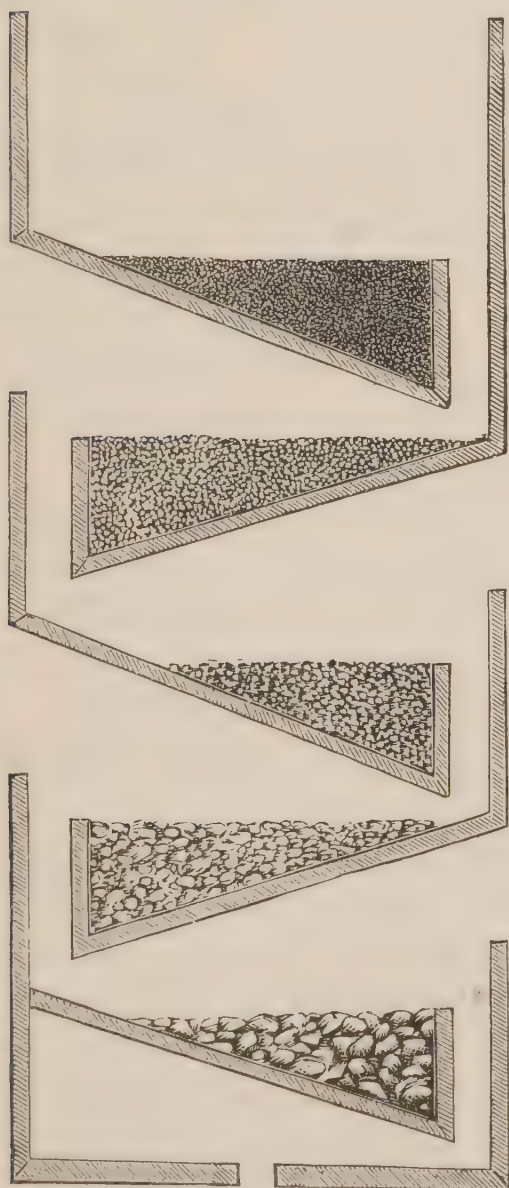
	Beef.	Pork.	Preserved meat.	Flour.	Rice.	Biscuit.	Dried fruit.	Pickles.	Sugar.	Tea.	Coffee or cocoa.	Butter.	Dried potatoes.	Beans.	Molasses.	Vinegar.
	Pounds.					Ounces.								Frac'n of pint.		
Sunday .....	.....	.....	¾	.....	½	14	.....	.....	4	1½	2	2	2	.....	.....	.....
Monday .....	.....	1	.....	.....	.....	14	2	.....	4	1½	2	.....	.....	½	.....	.....
Tuesday	1	.....	.....	½	.....	14	.....	4	4	1½	2	.....	.....	½	.....	.....
Wednesday .....	.....	1	.....	.....	.....	14	.....	4	4	1½	2	.....	.....	.....	½	.....
Thursday .....	.....	.....	¾	.....	.....	14	.....	.....	4	1½	2	2	2	.....	.....	.....
Friday	1	.....	.....	½	.....	14	2	.....	4	1½	2	.....	.....	.....	.....	.....
Saturday .....	.....	1	.....	.....	.....	14	.....	4	4	1½	2	.....	.....	.....	.....	.....
Weekly quantity	2	3	1½	1	½	98	4	8	28	3½	14	4	4	1½	½	½

When fresh bread is served, the allowance to be sixteen ounces. Fresh or preserved meat may be substituted for salt beef or pork, and vegetables for the other articles usually issued with the salted meats.

Next in, if not of equal, importance to food in the sanitary scale, is water. The revolution in the manner of supplying vessels with this

indispensable requisite, introduced by steam, is as marvelous as it is benign. Upon the new steamers, *City of Peking* and *Tokio*, condensers, constructed by the eminent engineer Wm. Lightall, are in use, capable of condensing all the water required for use on board, and delivering it into the tanks, reduced to a temperature of 50° Fahrenheit, or to a temperature corresponding to that of the water in which the vessel floats, by being conducted through tubes on the outside of the ship under water. This condensed water is chemically pure, if the condenser is in perfect order, and would be fit for immediate use, except that it is insipid from non-aeration. To remedy this defect, a simple contrivance has been devised by Surgeon Joseph Wilson, U. S. Navy, and is now in use at the Naval Hospital, Chelsea, Mass.

AERATOR, DESIGNED BY SURGEON JOS.
WILSON, U. S. NAVY.



This is constructed in the manner shown in the diagram—the top being about thirteen inches square, length three feet two inches, and the inclination of shelves about 35°, these being nailed to the boards at each side. The bottom has an auger-hole one inch in diameter; and the entire structure is built of three-quarter inch pine boards. As will be seen in the diagram, a layer of pebbles is deposited upon each shelf through which the water percolates; and by the time it reaches the iron tube at the base the aeration is complete.^(a)

The diseases most frequent among seamen of the present day, and which may be considered due in greater or less measure to the influences of their occupation, are consumption, rheumatism, and venereal diseases. The chief factors in the production of the two first are dampness, insufficient and improper food, and insufficient clothing. The insidious effects of dampness, undoubtedly one of the most potent causes of consumption

both ashore and afloat, cannot be more forcibly portrayed than has been done by Dr. Gihon in the extract quoted above. Consump-

^a I am indebted to Surgeon J. S. CLARK, U. S. Navy, for description and diagram of this aerator.

tion ought not to be the fatal disease that it is among seamen. The water of the ocean being eight-tenths oxygen, and the air breathed at sea, except that between decks, pure, it might seem to the superficial observer that consumption should be a rare disease, but there can be no greater mistake. It has been doubtless due to want of accurate knowledge among physicians of the actual conditions to be met with, that has induced them, more frequently in times past than at present, to recommend sea voyages to consumptives. To advise one with consumption, or even with a tendency thereto, to ship before the mast is to invite him to almost certain death. And even where the invalid enjoys the advantages of the cabin, with every facility for warding off dangers, and obtaining the full benefit expected, the experiment is extremely hazardous, and the result much more frequently adverse than beneficial. When the causes of this disappointment are closely studied, the reasons become apparent enough. The dampness and foul air of the ship, semi-starvation, or food not adapted to the wants of the human system, exposure to cold from insufficient clothing, overcrowding, and poisoning from inattention to personal cleanliness, are all calculated to produce, rather than ward off the threatened disease. In the production of rheumatism, dampness, exposure, improper food, insufficient clothing, and vitiated air apply with equal force; and as a result of rheumatism, and the irregularity and violence of the physical exertion called for by the sailors' occupation, organic disease of the heart is very frequently met with among them.

Over 200,000 American seamen die off or are physically disabled from pursuing their avocation every twelve years—nearly 17,000 per annum. Is it any wonder that there is a scarcity of efficient sailors?—that vessels leave port short-handed every day?—that shipwreck and loss of life grow more frequent year by year?—that of American commerce, once without a peer for efficiency, for dash and enterprise, it is now written *Fruit?*

What proportion of this frightful mortality is due to the causes above feebly depicted the sanitary statist is at no loss to determine. How feasible and adequate is their remedy only criminal indifference can much longer ignore. Shipping acts and missionaries, protective associations, and maritime leagues, all have their appropriate sphere and function of usefulness. But the true *pou sto*, upon which they must all finally rest their levers, is to be found in the healthy bodies, growing out of the wholesome lives, of the men before the mast.

Such wholesome lives and healthy bodies will only come as the result of a better Hygiene of the Forecastle.

AMERICAN COMMERCE AND THE SERVICE.

AMERICAN COMMERCE AND THE SERVICE.

BY FRANK W. REILLY, M. D.,
Surgeon United States Marine-Hospital Service.

HAVING been appointed Physician to the Fleet under the command of Lord Rodney, in the beginning of the year 1780, I determined to avail myself, to the utmost of my abilities, of the advantages which this field of observation afforded. This I was led to do, in order to satisfy my own mind as a matter of duty, as well as to find out, if possible, the means of bettering the condition of a class of Men, who are the great Safeguard of the State, but whose lot is hardship and disease, above that of all others.—*Observations on the Diseases of Seamen*; by GILBERT BLANE, M. D., F. R. S. S., Lond. and Edin., etc.; One of the Commissioners of Sick and Wounded Seamen, London: 1799.

IT was before the days of Howard that the author of *Rasselas*, the pioneer of “the unabridged,” bored by Boswell and suffering from the proverbial ennui of ship-life, oracularly pronounced that mode of existence to be simply imprisonment with a chance of getting drowned—at least, before the culmination of the reforms set afoot by the kindly Quaker, who remembered those in prison and visited them—or the precise and ponderous Samuel Johnson had never been guilty of so grossly inaccurate a definition. No prison, certainly none of modern days, so wretched but life within its walls is preferable, on the score of physical comfort, to the quarters and the life of the sailor on the vast majority of merchant vessels. No gaol-dietary so meagre, no penal servitude so exacting, no exertion of authority so unrestrained and brutal, no such utter want of care and forethought for health and life of convict or felon, as are the rule, and not the exception, for the man before the mast, would be tolerated, if comprehended, by the community. Dibdin and Byron, and Barry Cornwall, Michael Scott and Marryatt and Fenimore Cooper, in sea-song and poem and story, have set up in the popular mind an ideal mythus—a cross between Neptune and Antinous—and an unreal craft, with a subjective forecastle and no “bilge” to speak of, that walks the waters like a thing of life and her crew love better than a sweetheart. And these are about as near the prosaic and profane, not over-cleanly and thoroughly matter-of-fact “A. B.,” and the real vessel which he sails, and “cuts from” as soon as possible, as the pictures of the noble redman and his forest home by one of the same masters.

To a public apathy—excusable only on the theory of this misapprehension of the character and conditions of sea-life and service—is due the existence of much of this evil, which the philanthropist

recognizes and deplores; which the ship-owner and underwriter realize and pay the cost of; and which, thus far, the statesman and political economist theorize over and legislate at in a piecemeal and utterly inadequate fashion. Concededly indispensable to commercial prosperity, as well as to the national safety and honor, the merchant marine of almost every civilized country is substantially the same in its conduct and regulation, in this latter part of the XIXth century as it was when Anson, more than one hundred years ago, lost eighty per cent. of his crew in two years from scurvy; is to-day relegated as completely to the hands of those who have only a pecuniary and shortsighted interest in the sailor—simply as a means to an end—as in the days when the captain of an East Indiaman could clear \$150,000 on a single voyage, while the man before the mast received thirty-five shillings per month for his services. ^(a)

American tonnage is again steadily increasing; and, notwithstanding the terrible blow to our commerce during the Civil War, we are still surpassed by only one flag as carriers for the world. But an American seaman on a foreign-going American vessel is fast becoming unknown. We yet, it is true, furnish masters and officers, not alone for our own vessels but for those of other nations; and our fisheries and coasters are still manned largely by Americans. But the class of men to whom, twenty years ago, was due the fame of the Baltimore clipper, quite as much by their handling of her as by her own intrinsic qualities—who “carried on” in weather that hurried others below, after sending down topmasts, taking in and reefing sail—who made the quickest voyages and the most profitable, as well as adventurous—these men are dying out; and those who should fill their places are making shoes at Lynn, or raising corn on the Grand Prairie, herding cattle in Texas, or drifting and blasting in the silver mines of Nevada. Men whose heritage is the sea, have been driven from it into the overcrowded ranks of labor on shore, secure there at least of decent food, of a habitable dwelling, and of the equal protection of the laws against personal violence and outrage. Those who remain, with a rare exception, are the vicious, the skulker, the “sea-lawyer,” the generally incompetent and worthless. And these deter good men from shipping; these swell the hospital returns; these add to the dangers of the sea.

This is a sweeping and a serious indictment; one of which the truth alone would hardly be the sufficient justification. But it is not merely because it is true that it is recited, but rather that a severe statement of the facts may point the suggestions of remedy; for remedy there must be, or the promise of maritime supremacy, drawn from our in-

creasing tonnage, will be but an empty one. As a high nautical authority has recently said: First in the list of essential requirements for an American merchant navy is *manhood*. We want men—strong, active, healthy bodies, without which we can have neither brains nor souls. And wanting any one of this trinity—body, brain, or soul—the staunchest vessel that ever left the ways is no better than a rudderless hulk, as witness *L' Amerique* and a score of others within the past year or two. What steps are taken to secure either of the three?

Men whose business it is to destroy both property and life are first carefully selected for physical fitness; and then armed, clothed, fed, and sheltered, constantly attended by medical skill, protected against themselves by discipline, and guarded in their rights by articles of war—all in accordance with the highest technical and professional knowledge. And when actually engaged, in anything like the numbers which are constantly employed in the mastery of the sea, sanitary commissions and societies of succor and relief organizations of divers kinds attend upon them; hospitals and homes and asylums are endowed and founded for them; when disabled they are retired and pensioned; and, when dead, the nation, still grateful to them, adopts their widows and orphans, and, mourning for them, decorates their graves and keeps their memories green.

That this should be so is fitting and proper; no care too patient or watchful, no provision too generous nor gratitude too substantial, no meed of glory too ample, for the soldier who sacrifices ease and comfort and risks his life upholding the honor of his country, or in the defence of her homes and firesides, or who, for the deliverance of a race,

— ventures life and love and youth
For the great prize of death in battle.

But is not the sailor in his mission—guiding the white wings of commerce over every sea, weaving alien races and countries together with peaceful ties of industry and mutual intercourse, and making possible the spread of civilization and Christianity throughout all lands—is not he also worthy some individual effort, some public care and protection.

Following a vocation in which his daily life is as abnormal as that of the soldier—subject to similar and fully as demoralizing agencies and conditions—in his isolation from domestic influences and the “moral strength and security that come from settled social life and ties, and thus made the too-frequent victim of his own recklessness and self-indulgence; an adult with the reasoning faculties of a child, and with the lusts and passions of a savage, whose days alternate between the most exacting toil, the sternest privation, the most heroic

braving of personal danger, and the wildest excesses, the most unbridled license"—the lot of the merchant sailor is, above that of all others, one of hardship and disease; and the public indifference to it is a reproach to modern civilization, a disgrace to our common humanity.

The sea is his battle-field, his every voyage a campaign; a battle-field not the less real than those of war, because the elemental forces are here the enemy—a campaign not the less hazardous than those of armies, for its casualties and losses, year by year, nearly decimate the total strength employed. And for this war, waged unceasingly—for these fighters of the waves, outnumbering the standing armies of the world, what provision is made, sanitary, social, legal, or moral?

It is true that the ravages of scurvy have been checked through the efforts of medical skill, but the long-known precautions necessary to prevent its occurrence are yet only imperfectly carried out.^(c) It is true that the outrages of "crimping" and "shanghaing" are less frequent; but it is also true that sailors may be, and are, imprisoned for refusing to go to sea on vessels in which their physical comfort is less regarded than is that of the live stock on board^(d)—not only this, but on vessels so notoriously unseaworthy that their fate is confidently predicted, and the predictions as certainly fulfilled.^(e) It is true that laws innumerable cumber the pages of the statute books for the protection of life at sea; but the subjects of such care are the passengers, not the sailors; and poor food, wretched shelter, and a merciless task-mastery, enforced with steel knuckles and the belaying pin,^(f) by authority which, through the law itself, is supreme on board ship, do not come within the scope or cognizance of such legislation. It is true that Shipping Commissioners' Acts in this country and Merchant Shipping Acts abroad have been enacted, with elaborate provisions for modes of shipping and discharge, for the punishment of offences by seamen, and with schedules, and tables, and fees *ad libitum*; but it is also true that, since the maritime code promulgated by Richard I, and founded on the *Rôles d'Oléron*, there has been no substantial change for the better in the legislative care and protection of seamen. And it is also true that, while boards of health and sanitary organizations, and municipal ordinances, and national enactments, have been established for the prevention of disease and the protection of health and life on shore, we may yet look in vain in the fore-castle for a parallel to the drainage and ventilation and light requirements of a board of health in dealing with tenement-houses;^(g) or in the ship-yard or dock for an officer with the same authority to forbid the employment of an unseaworthy ship as an

ordinary policeman possesses on land to prevent the use of an unsafe dwelling, or to cause the repair or removal of an insecure structure.

What Plimsoll has done in England to remedy one class of abuses, may be done in this country to remedy other, and not less important—for, as has been justly remarked, it is useless to argue that any vessel, however perfect her build, her material and belongings, the position of her load-line, or the stowage of her cargo, can be even comparatively safe if she is manned by a physically incompetent crew. And before physical incompetence can be weeded out—before medical inspection can be enforced—before any material improvement in the physique of the men before the mast need be looked for—we must have the same sanitary effort, the same intelligent interest in the food, the clothing, and the shelter questions for the merchant navy, that now obtain both in civil and in military life ashore. Nor should it be forgotten, in the discussion of these subjects, that it can be shown to be not only not costly, but even pecuniarily profitable, to do the hygienically-correct thing in the premises. The *argumentum ad crumenam* must not be lost sight of in addressing the commercial mind; and just as certainly as that scurvy can be prevented by the use of a diet costing no more than one which will produce it—as that topgallant forecastles, made necessary by the encroachments of cargo, are as cheap and more healthy than the old-fashioned 'tween-decks—and as that the substitution of the modern system of sanitary inspection for the barbarous practice of a quarantine of detention, while it puts money in the shipper's purse by relieving him of vexatious delays and expenses, collaterally benefits the man before the mast in securing some compliance with the laws of health—just as surely as these things are so, so sure is it that whatever outlay goes to promote the sailor's comfort and to preserve his health, and so to increase his working power and endurance, is a good investment.

This, then, is the part the medical officer of the Marine-Hospital Service may take in the promised rehabilitation of American Commerce: To study the sailor, not only in the hospital wards for purposes of cure; but in the forecastle and cook's galley and hold on board ship, and in the shipping office and boarding-house and usual places of resort on shore, for purposes of prevention—in short, to find out, if possible, the means of bettering the condition of a class of men whose lot in 1874 is, as it was a century ago, hardship and disease above all others. And there needs no better model for such work and study than the earnest, kindly, and sagacious old Physician to the Fleet, Sir GILBERT BLANE.

a History of Merchant Shipping and Ancient Commerce. By W. S. LINDSAY. Vol. 2, p. 472. Also, Appendix, No. 12, *ibid.*, pp. 583-'4.

b Lemon juice as a specific against scurvy was known more than two hundred and fifty years ago, as is shown in *The Surgeon's Mate, or Military and Domestic Medicine*; by John Woodfall, Master in Surgery; London, 1636; and was first officially introduced into nautical diet in 1795, through the efforts of Drs. Blair and Gilbert Blane, Commissioners of the Board for Sick and Wounded Seamen. And yet on December 1, 1873, the American ship *Cultivator* was picked up in distress off the port of San Francisco by the United States revenue-cutter *Oliver Wolcott*, with all hands disabled from scurvy; and the report of Marine-Hospital Surgeon ELLINWOOD, who was directed by the Supervising Surgeon to investigate the facts, states that the vessel was insufficiently provisioned on leaving New York, and the meats were in bad order, so that on making Cape Horn rations both of food and water were reduced, and thereafter further reductions were made. Four months out from New York fifteen men were down with scurvy, the crew consisting of seventeen men and two boys. About November 15th the British ship *Magna Charta* relieved their distress at sea by fresh supplies of food and lime-juice, and probably saved several lives. Surgeon ELLINWOOD adds: "The fact that the ship was insufficiently provisioned must have been apparent when she sailed from New York, for the men, who are unusually intelligent, told me that they so informed the officers before sailing."

c "In the autumn of 1870 the Privy Council issued an order that no sheep should be imported into English ports after the 30th of September or before the 1st of April, unless sheltered from the weather on board. On March 25, 1871, seven men, for refusing to proceed to sea in a ship in which their sleeping bunks were, as was proven, 'very wet, so much so that they were obliged to sleep in their oilskin clothing,' were brought ashore, handcuffed by the Margate police, and chained together on the jetty, and were followed by a great number of people, 'many deprecating the manner in which they were secured;' and the report adds that they were committed to the county gaol for twelve weeks' hard labor."—(Our Seamen: An Appeal. By SAMUEL PLIMSOLL, M. P. P. 45.) And within a very recent period the crew of a Philadelphia vessel were arrested and imprisoned for desertion, after it was shown before the Commissioner that the provisions supplied were unfit for use, that her fore-castle was wet and uninhabitable, and the vessel herself leaky and dangerous.

d Mr. Stephenson, the Secretary to Lloyd's, read before the Royal Commissioners the following letter from the mate of a ship to his sweetheart, (see Minutes of Evidence, p. 240:)

"DEAR LIZZIE: We sail to-night, and I wish she was going without me, for I don't like the look of her—she is so deep in the water. But I won't show the white feather to any one. If she can carry a captain, she can carry a mate, too. But it's a great pity that the Board of Trade doesn't appoint some universal load water-mark, and surveyors to see that ships are not sent to sea to become coffins for their crews. But don't torment yourself about me. I dare say I shall get through it as well as anybody else. Hoping that you may continue well, I remain yours, fondly,
TOM."

The ship went to the bottom with all hands. "That," said the witness, "was an instance of a vessel going to sea with competent persons on board, who knew she was going to the bottom. He had received many letters of this kind." (Ship Ahoy, p. 2 of Appendix, by SAMUEL PLIMSOLL.) See also PLIMSOLL'S *Our Seamen*, *passim*.

e "Out of our whole mortality list, consisting of seventy-seven in number, we can single out but ten cases which afforded anything like a fair chance for the successful exhibition of remedies; the balance were in such a wretched state when admitted, induced by starvation and criminal brutality and neglect on board, or by drunkenness, and every species of sensual excess on shore, that little or nothing could be done for them." (See *Report of Dr. Moffatt*, quoted by Surgeon HEBER SMITH.)

Extract from Monthly Report of Sick and Disabled Marine-Hospital Patients, Apalachicola, Fla.

"REMARKS: S. B. Nelson, admitted from the brig *Adeline Richardson*, of New York, November 23, about 11 o'clock A. M.; died the following day about 11 A. M. Unable to answer any questions on admission; on stripping his body he was found to be covered with bruises, apparently inflicted with a stick or billet of wood, and in the left hypochondrium severe contusions, as though he had been kicked with the toe of a boot or shoe. The function of deglutition was suspended, and treatment was of no avail. *Post mortem* revealed rupture of the spleen. Walter Tibbitts, admitted same date from the same vessel, also comatose, and died about the same time as Nelson. This man had few marks of bodily violence, but his appearance indicated inhuman treatment by being driven when not able to do duty."

In the affidavit of Captain N. C. Johnson, master of the American ship *Sovereign of the Seas*, recently given before United States Commissioner Stillwell at the port of New York, concerning J. W. Carey,

his first mate, the captain says, "that in the whole course of my forty-two years' experience as a sea-man I never had to do with, or knew, so unreasonable and brutal a man to seamen." But Carey stopped short of actual homicide, only driving one man insane by his cruelty, a description of which was given by one of the crew, under oath, thus: "That, notwithstanding, [the remonstrances of the cap-tain,] Carey continued his abuse and ill-treatment of Bron daily, and, to avoid being seen by the captain, ordered Bron under the topgallant forecassle, and there did to him what he pleased, frequently leav-ing him with his face all covered with blood, using for the purpose of beating him either his fists or anything that first came to hand."

What a lurid light do these facts, which might be multiplied *ad nauseam*, (see Among our Seamen ; by J. GREY JEWELL, M. D., late United States Consul at Singapore,) throw upon the following table from The (London) Lancet of May 23, 1874 :

Mortality in the British Merchant Service out of the United Kingdom.

Supposed cause of death. (202,239 men employed.)	As it was in 1873.		As it would have been if same ratio as Royal Navy in 1872.	
	No.	Ratio per 1,000 men.	No.	Ratio per 1,000 men-of-war's men.
Disease and natural causes	1, 653	8. 17	1, 223	* 6. 05
Drowned by shipwreck	2, 231	11. 04		
Drowned otherwise	1, 032	5. 10	238	1. 18
Other accidents	291	1. 44	222	† 1. 1
Murder and homicide	5	. 024	4	. 02
Suicide	41	. 203	30	. 15
Unknown causes	140	. 693		
Total for legal inquiry	3, 740	18. 5	494	2. 45
Mortality out of United Kingdom	5, 393	26. 67	1, 717	8. 5

*Including deaths in the United Kingdom. †Including gun exercise and action.

After pointing out that, as no medical inquiry ascertains the cause of such deaths upon the high seas as are supposed to result from disease, so no legal investigation by coroner or otherwise follows upon suspicious or sudden deaths at sea; and that during twenty years no person has been put on his trial for causing a death at sea otherwise than by red-handed murder, The Lancet observes that, "With whatever this violent death-rate be compared, it shows a vast waste of human life. That a great deal of this vital waste is quite beyond the natural risks of the sea, and is easily preventable, seems, in the absence of any legal inquiry, to be a reasonable conjecture. Before anything can be done to stop this vast accession of 'drownings,' a coroner must inquire, in each individual case, according to the old sea law, 'whoe killed him, and unto whome the ship did belong.'"

fLest it may be thought the descriptions of forecassles given in Surgeon HEBER SMITH's paper are highly colored or distorted by a too lively sympathy, take the following from Mr. Lindsay, author of the volume already quoted—Merchant Shipping and Ancient Commerce—himself a large ship builder and owner, and a writer certainly not obnoxious to the charge of dilletante sentimentalism. Mr. Lind-say says that as he "has a most vivid recollection of the forecassle of the ship in which he served his apprenticeship, a description of it may serve to illustrate an ordinary specimen of the sea-homes of sailors forty years ago;" and it will be seen, by comparison with Surgeon SMITH's illustrations, that there has been little improvement since. After describing the vessel, her build, &c., he says: * * *

"This place, which was in the 'tween-decks at the extremity of the bow, may have been about twenty-one feet in width at the after or widest part, tapering gradually away to a narrow point at the stem. The length in midships was somewhere about twenty feet, but much less as the sides of the vessel were approached. The height was five feet from deck to beam, or about five feet nine inches from deck to deck at the greatest elevation between the beams; the only approach to it being through a scuttle or hole in the main deck about two and a half feet square. Beyond this hole there were no means of obtaining either light or ventilation, and in bad weather, when the sea washed over the deck, the crew

had to do as best they could without either, or receive the air mixed with spray, and sometimes accompanied by the almost unbroken crest of a wave, which, in defiance of all the tarpaulin guards, too frequently found its way through the scuttle. Here fourteen persons slept in hammocks suspended from the beams, and had their daily food. There was no room for tables, chairs, or stools, so that the tops of their sea-chests, in which they kept their clothes and all their possessions, were substituted for those useful and necessary household articles. In fact, so closely were these chests packed, that it was difficult to sit astride them—the mode which the sailors found most convenient for taking their meals—especially in rough weather. But the whole of this limited space was not appropriated to the use of the crew, for it contained a rough deal locker, in which the beef and soup kids and other utensils were kept, while the stout staunchions or knight-heads which supported the windlass on the upper deck came through the forecastle, and were bolted to the lower beams; and too frequently, when the ship was very full of cargo, a row of water casks and provisions were stowed along the after bulk-head, which was a temporary erection; while on the top of these, cables, coils of rope, and numerous other articles were piled. At all times it was a foul and suffocating abode, and in bad weather the water and filth which washed about the deck and among the chests and casks, created the most intolerable and loathsome stench. Here, however, these fourteen sailors and apprentices slept, washed, dressed, and had their food, consisting almost entirely of inferior salted pork, beef, which was sometimes nearly as hard and unpalatable as the kids in which it was served, and brown biscuits, too often mouldy and full of maggots. To make matters worse, the forecastle of the ship, to which the Author refers, was full of rats, and he has the most vivid recollection of one of these animals on more than one occasion finding its way into the hammock where he slept. In the West Indies the place was so suffocatingly hot that the sailors invariably slept wherever they could find a clear place upon deck or in the tops; and in winter, when approaching the English Channel, or when on an intermediate voyage to the Bay of Fundy, it was as bitterly cold, no stoves or fires of any kind being allowed on board except in the galley and in the cabin. No Siberian slaves ever suffered so much from the intensity of the cold as did those of the sailors and apprentices of that ship, who did not desert during two months of a winter when she lay at anchor in one of the roadsteads of the Bay. The bow-ports were then obliged to be open to receive the cargo, and could only be covered with matting during the night. One of these ports opened upon the forecastle, so that its occupants might almost as well have slept upon deck, their damp clothes, as they lay upon the chests or hung suspended from the beams, being frequently frozen to such an extent that the ice had to be beaten from them before they could be again used."

UNSEAWORTHY SAILORS.

UNSEAWORTHY SAILORS.

BY C. HENRY KING, M. D.,

Physician-in-Chief, Seamen's Retreat Hospital, Staten Island, N. Y.

AFTER three years' experience and observation in charge of a hospital where none but sailors are admitted, the writer, in his annual report of the institution for the year 1872, made substantially the following remarks concerning the physical condition of the patients under his care: Many of these men present evidences of utter unfitness for sea-life, and inquiry reveals the fact that sailors are often shipped suffering from consumption, syphilis, and other diseases at the time of their enrolment. Much suffering to the men, inconvenience to their captains, and, possibly, shipwreck and loss of life, might be avoided if more care was exercised in selecting a ship's crew. In not unfrequent instances a ship leaves port and has accomplished but a few miles of her voyage when it is discovered that a portion of the crew are laboring under disease which renders them unfit for duty, deprives the ship of their services, increases the labor of those who are well, causing discontent, if not insubordination, and occasioning expense to the vessel as soon as she arrives in port. Nor does it cease here. The men are placed in hospital; the vessel is again ready for sea; but they are not. The captain is obliged to pay them off, leave them behind, and ship others to have the same thing repeated. This is sometimes the fault of the captains, at others the result of concealment and duplicity on the part of the men, who would have been much better off to have remained on shore in the first instance and received medical treatment. There is a way in which to remedy this crying evil, viz: To have one or more physicians, appointed by the Government or otherwise, in each large port to examine every sailor before he signs the articles. This is the custom in the Army and Navy, and the merchant marine largely outnumbers both these services combined. The expense attending this examination would be slight compared to that now occasioned by its absence, while its benefits would be manifold.

Almost at the same time, but several thousand miles away, Dr. John Patterson, superintending surgeon of the British Seaman's Hospital at Constantinople, set forth the same facts in the following language:

I would call the attention of Her Majesty's Government to what I deem a subject of sufficient importance to include in this report, viz.,

the broken-down condition in which men arrive at the port of Constantinople.

Since the introduction of screw-steamers into the Levant, Danube, and Black Sea trades, men are landed at hospital, suffering from severe forms of chronic disease and broken-down constitution. The majority are shipped in a diseased state, and many of them barely reach Constantinople alive.

Cases of foul chronic ulcers, constitutional syphilis, in every form, chronic skin diseases, old and broken down drunkards, men far advanced in consumption, and old men far beyond the period of active service, seem to be indiscriminately shipped.

The nature of the work, and the very imperfect hygiene—conditions which obtain on board many of the vessels—soon tell upon them.

They break down in a few days—are left behind in hospital; they require very prolonged tonic treatment before they rally, and many have to be sent home even in a state of debility, as it is impossible (especially in this climate in winter) to recover strength perfectly in hospital; and there is no accommodation out of hospital for convalescents.

In their report to Parliament dated December 21, 1872, the Assistant Secretaries of the Marine and Financial Departments of the (English) Board of Trade, and to whom the foregoing statements of Dr. Patterson were addressed, made the following comments thereon:

One point very strongly urged on our notice, at some ports, is the necessity for instituting a medical examination of seamen before they are shipped for the voyage. Under the present law this examination can be made, provided the owner and men agree to it, and the owner pays for it. Practically, the provision is a dead letter. As between the owner and the men, we should not recommend any more stringent law than the present; but a very important consideration has arisen, viz., that as the State pays very large sums for the medical and hospital expenses of distressed British seamen abroad, and for their maintenance and conveyance home, the State, merely in the interest of economic expenditure, might properly insist on a medical examination of seamen.

The proposition fairly open for consideration is, Should not the ship-owner always be called on and required to pay for diseased sailors left abroad, unless he shows that he took the proper and necessary precautions to have his seamen examined medically before leaving the United Kingdom?

In cases where, as in some of the regular lines, the same men serve for years in one employ, their characters are well known, and a medical examination is unnecessary and would not be enforced; but where seamen are picked up promiscuously, as they are in the majority of cases, the ship-owner may reasonably be required to ascertain, before shipping his crew, that they are fairly sound.

Thus was attention attracted simultaneously in the United States, in England, and in the Levant, to the unseaworthy condition of seamen, and the same conclusion arrived at as to the necessity for

legislative interference in this direction in the interests as well of commerce as of the sailor himself. The added experience of the past two years in this hospital only strengthens the conviction that, not until an improved physical standard of the men themselves, to whom are intrusted the care and safety of the ship, is achieved by some such measure as a compulsory medical inspection before shipping, will the efforts of Mr. Plimsoll and others, to lessen the dangers of those who go down to the sea in ships and do business upon the great waters, be complete. For, as *The Lancet* justly observes, the Plimsollian agitators have failed to recognize that no vessel, however seaworthy in herself, can be counted as seaworthy, in the proper acceptation of the term, unless she is manned by a healthy and competent crew.

We gather promise for the future, however, from the language of the Supervising Surgeon in his last annual report. Speaking with the circumspect deliberation of official authority, and after three years' observation of the number of hospital patients who obviously had never been physically fit for the duties, the exposures, and the privations of a seafaring life—"a class of patients who alternate between the hospital and the fore-castle, with a decided preponderance toward the former"—he suggests for consideration the question "whether it may not be found advisable to forbid, by statute, hospital relief at the expense of the fund in any case where it is evident that the applicant was physically unfit for sea-life when shipped."

It may be doubted if more than this be practicable at the present time; for it is asserted that a compulsory and universal medical examination of seamen, before signing articles, would only hamper the shipping interest, which even now, in the absence of any such restriction, complains of the scarcity of able-bodied and competent men. Dr. WOODWORTH'S suggestion, to which there can be no objection—and which, indeed, he is entitled to urge as the administrator and supervisory chief of the seaman's own service—would, if adopted, pave the way for a more comprehensive measure, and, by its indirect influence, do much to elevate the physical standard of seamen.

To what extent such action would work good may be inferred from an examination of the medical and surgical statistics of his Service, which shows that upwards of twenty per cent. of the whole number of cases applying for relief are of purely preventable disease; and the experience of every medical officer consulted goes to show that, of this number, by far the largest proportion occur among individuals who would have been advised by a physician to adopt some other avocation than that of a sailor.

One disease, consumption, stands prominently forth in the list as depleting the merchant marine, and hastening a fatal result with those so afflicted by reason of their following the sea. Not that sea-life in itself is believed to aggravate this disease; but the conditions of such life in the forecastle, with its utter want of hygienic observances, undoubtedly does. The known want of thrift, the hardships endured at sea, together with the excesses of sailors while on shore, soon drive those of weak or diseased lungs into the hospital, where they stay their allotted time and perhaps recover sufficiently to reship again for a short time, and then spend months again in another hospital; many chronic cases spending in this way four months in each year in some hospital, converting it into a boarding-house at a slight expense to themselves and with manifest injustice to those contributors to the hospital fund who only claim its benefits in cases of emergency.

The average duration of treatment of consumptive cases in hospital is about four months, ranging from sixty days to eight months; and the percentage of deaths based upon the whole mortality of hospitals is about twenty-four.

It is believed that the present allowance of time in hospital is sufficient, as any person requiring more than eight months' hospital treatment at one time is surely unfit to be a sailor. Yet at present there is nothing to prevent one who has just completed his eight months' treatment for some incurable disease from reshipping direct from the hospital, which he frequently does, provided he is barely able to stand up; if not, he is sometimes gotten drunk, carried aboard, and "dumped" into the forecastle, the captain being informed that he is a good man, "only a little drunk." It not unfrequently occurs that such a case, suffering from aneurism or heart disease, aggravated by his exposures and enfeebled by his excesses, may die suddenly on some slight exertion. An instance of this kind has occurred during the preparation of this paper. Seaman David O'Brien shipped on the schooner T—— C—— about ten o'clock in the morning; at about three o'clock in the afternoon of the same day, while assisting in hauling down the jib, when the vessel was nearly opposite this hospital, he fell suddenly on the deck and expired. The coronor's inquest elicited, among other things, the fact that this man had only recently been discharged from the Chelsea Marine Hospital; had come to New York and shipped on board the vessel. The *post mortem* revealed, as the cause of death, an aneurism of the arch of the aorta. This sailor had received his "advance wages," which were a total loss to the owners, as were also the funeral expenses, besides detaining the schooner

twenty-four hours to ship another man, with no assurance that a similar accident might not happen again in the absence of medical inspection.

So much has been said and written of syphilis as a purely preventable disease, that it need only be considered here in its economic aspect. When a sailor ships, he contracts to give his personal services for a consideration, and though he may not enter into a written contract to avoid doing anything which may impair the value of his services, there is, nevertheless, an implied obligation to that effect. Therefore, when he becomes diseased by his own act, he violates his obligation, renders himself unworthy of sympathy, nor is he in equity entitled to hospital relief. But although his captain may discharge him and decline to pay for time thus lost, by law he still has access to the hospital, or can, under existing circumstances, reship, which he frequently does, until his disease is again detected, he is discharged again, and the same thing repeated indefinitely. Thus is the evil permitted to thrive, and the patient, so long as he can obtain employment so readily, continues his calling with a progressive disease making inroads upon his system, until at last, he is completely broken down and becomes an almost permanent inmate in hospital.

If patients suffering from these two diseases alone could be eliminated from those entitled to relief from the fund, as suggested by the Supervising Surgeon, a vast stride would be made in the improvement of the physical standard of the merchant marine. For it cannot be doubted that when owners of vessels come to realize, as they soon would, that the shipment of a hospital patient, instead of an "A B seaman," meant the payment by the ship of expenses incurred in his treatment, they would not be slow in seeking the assistance of the inspecting surgeon. And when it was found that seaworthy sailors meant shorter and more economical voyages and less risk to property and life, the hands of those who are engaged in the work of elevating the physical, social, and moral condition of the toilers of the sea would be strengthened by those now interested only in the pecuniary profit.

SAILORS AND THEIR DISEASES IN CHELSEA
HOSPITAL.

SAILORS AND THEIR DISEASES IN CHELSEA HOSPITAL.

BY A. B. BANCROFT, M. D.,

Surgeon-in-charge U. S. Marine Hospital, (Chelsea,) Port of Boston, Mass.

I PROPOSE in this paper to limit myself to the consideration of the diseases and injuries to which sailors are most exposed, as shown by the records of this hospital during the past five years.

From what we know of *Bright's disease*, and the causes which produce it, we should expect to find it a not unfrequent malady among seafaring men, whose business exposes them to storms and, in a word, to all changes of the weather, especially to those of a sudden and severe character; for it appears that, in very high latitudes where the cold is continuously severe, or in the tropics where the heat is continuously oppressive, this affection of the kidneys is far less common than in the temperate zones. Of the truth of this I think there can be no doubt, and for its solution we must look to the sudden and severe changes of weather which prevail in these latter regions.

The disease presents two forms, acute and chronic. The first, although less dangerous than the last, and usually terminating in recovery, is, with sailors, often converted into a serious affection, because its early symptoms are, from ignorance, disregarded, or, if recognized, fail to obtain at sea the appropriate treatment necessary to prevent the development of structural lesions. In private practice, a patient who should apply to his physician with the following symptoms, viz., chills, pain in lumbar regions, nausea, hot skin and scanty renal secretion with albumen, dyspepsia, and a puffiness of the features, would get warm or hot-air baths, dry cupping to lumbar region, saline purgatives, appropriate diuretics, flannels, and rest in bed. A sailor, at sea, with the same symptoms, if not compelled by an inhuman master or stress of weather to work on, might get a hard bed and a dose of salts; but these would hardly suffice to bring him out of his attack, or rescue him from the development of those organic changes which constitute the grave form of the disease.

The duration of treatment varies largely in both forms, depending so much as it does on the more or less debilitated condition of the patient when he first presents himself to our notice. A freer exhibi-

tion of quinine and iron, and a more generous diet of albuminous food, are necessary in this class of cases, as compared with those in private practice, or even in general hospitals. Death from non-complicated acute Bright's disease is very rare, the fatal result being usually caused by the supervention of pneumonia, peritonitis, &c., upon the original disease, and occasionally by uremic poisoning. In the chronic form the mortality rises as high as three per cent.

Enteric fever is a disease of seafaring men, for they are exposed to the causes which produce it. In the first place, youth is almost an essential condition of the development of this disease, and two-thirds of our hospital patients are under thirty years of age. Change of residence—from the quiet routine of home to the new and often depressing influences of ship-life—brings a change in all their habits, and coarse food, bad water, and foul air from ships' holds, complete the conditions. A physician in ordinary practice, when called to a case of this fever in its early stage, would enjoin upon his patient the necessity of keeping in bed, so that his strength could be husbanded to carry him through a disease—perhaps of a severe type and of unknown duration. Having attained this object, and regulated his patient's food and surroundings, he feels that he has done all that can be, in this incipient stage of the disease, and awaits further developments.

Rarely have we the privilege of treating a case of enteric fever, until it has run through one-third or one-half its course. The subjects of typhoid enter the hospital exhausted by muscular efforts which they are ill able to make, with a diarrhoea made more unmanageable by previous purgation, and a nervous system prostrated and worried.

We start, then, as is evident, in the treatment of our typhoid-fever patients with the odds against us.

Milk is the only nourishment allowed until the patient's condition clearly demands a change. Stimulants are required at an earlier period than in other cases; also quinine, in small doses. Sleep is invited by gentle anodynes.

The result of our cases of this affection is far more satisfactory than one would conclude when he considers the unfavorable circumstances under which treatment is assumed—the mortality being from seven to eight per cent.

The exposure of the sailor to changeable and wet weather for hours, without thought or time to shift his damp clothes, is the principal exciting cause of *rheumatism*.

Some sailors, as well as landsmen, are more liable than others to rheu-

matic affection of the joints, from hereditary predisposition. Unlike typhoid fever, one attack not only does not protect an individual from a succeeding one, but, in truth, predisposes to it. Like Bright's disease, it prevails most in temperate climates, and for the same reason. A description of a disease so well known, cannot be necessary. It is mostly to be dreaded on account of its tendency to affect the heart and its membranes. As its invasion is stealthy and often without warning, a daily examination of the cardiac region is imperative.

The chronic form is characterized by a much less rapid inflammatory course, but by involving the fibro-serous and synovial textures of the joints, and sometimes producing in them synovial effusion, cretaceous deposits and ankylosis, it frequently results in disability for sea-life.

As soon as a patient with acute rheumatism arrives in hospital his urine is tested for acidity, which in almost every case is present in an abnormal degree. He is put into blankets, a solution of the bicarbonate and nitrate of potassa and opiates *pro re nata* are administered. Warm or hot fomentations or cotton batting are applied, covered by oil-silk. Stimulating liniments are never employed. The solution of potassa is continued until the reaction of the urine is changed. The treatment is completed by quinine, in moderate doses, and iron, always rendered necessary by the marked anæmic condition of our rheumatic patients.

The treatment of the chronic form is mostly by iodide of potassium. Liniments to joints are not only admissible but useful. Tincture of iodine, the galvanic battery, dry cupping, and warm baths are also important agents in the treatment of this disease; and the last but one we have found especially efficacious, and regard it as a remedy much less in use than its importance warrants.

Cases of *malarial diseases*, chiefly of the intermittent type, enter the hospital quite frequently, arriving from Southern ports. The germ of malarial poison is sometimes in repose for months, and, as is well known, persons who get the disease in a locality where it is endemic may journey into another and far-off country before the effects of the poison show themselves.

Remittent fever is rare in this hospital, but we have had a few cases of the *pernicious intermittent*, and they are strongly suggestive of some cases of *coup de soleil*. The spleen is the viscus found to be first affected in malarial diseases, being much enlarged, soft in texture, and afterwards becoming solidified, resembling hepatization. Similar changes may occur in the liver, except the rapid increase and decrease in size which mark the spleen.

Sailors from northern latitudes, on their arrival in paludal districts,

are prone to take the disease, especially if their constitutions have been impaired by previous debilitating causes.

If the patient suffering from ague arrives in hospital twelve hours before the expected return of a paroxysm, eight or ten grains of sulphate of quinine is given him, repeated once in six or eight hours for the next twenty-four, and continued daily, each dose diminished by one grain from that of the preceding day. If in eight days the animal temperature is not normal, and convalescence fully established, the quinine, in two-grain doses, three times a day, is continued, until the desired result is obtained.

If the patient enters the hospital quite sick and debilitated, an hour or so before the anticipated chill the salt in a solution containing four to six grains is introduced hypodermically. This intercepts the paroxysm and gives time to control the disease by the usual mode of administering the medicine. The hypodermic injection is especially valuable in those cases of the pernicious type where the administration of the medicine by the mouth, by reason of the extreme comatose condition of the patient, is not practicable. We have seen some surprising recoveries from this mode of administration, when the state of the patient seemed desperate.

Scurvy, although generally regarded as a disease limited to sailors, is also an army disease. It is more complex than simple, and is caused by the want of fresh succulent vegetables, and of physical comforts, such as pure air, strong sunlight, good water, clean skin, and sufficient clothing. Dysentery and malarial poison, unquestionably predispose to the disease.

Scurvy patients, as they appear at the hospital, usually present most or all of the following symptoms—pale complexion, lips devoid of healthy color, depression of spirits, respiration accelerated upon exertion, offensive breath, spongy and bleeding gums, cedematous legs, livid spots and broad bruised-like patches on the surface, and hemorrhage from nose or bowels.

Our scurvy patients get lemon juice freely, potatoes, cabbage, raw onions, milk, meats rarely cooked, and some preparation of iron and quinine.

Fissure of the anus is a painful and not uncommon affection among sailors, sometimes connected with ulcers, and often caused mechanically by difficult defecation, as in obstinate constipation, venereal infection, &c. The pain attending the act of defecation is quite severe, and is sometimes prolonged from one act to the next. There is, in consequence, often considerable constitutional disturbance. In fact, one

who has not experienced in his own person, or had a patient afflicted with this apparently trifling lesion, cannot realize the great suffering it produces. Fissure is often mistaken for hæmorrhoids, although the two affections are distinct but sometimes coexist. "Piles" is the invariable name for fissure among sailors, and often among landmen.

Our treatment is simple. The bowels are first emptied the day before the operation. A sponge with a string attached, and large enough to fill the rectum, is passed up above the fissures, for there are generally two or more. The sponge cleans the mucous membrane as it is pushed up, and likewise obstructs the passage of any fæces during the operation. A dilator or speculum is now introduced, and, by gently stretching the mucous membrane, reveals the lesion. Several superficial scarifications lengthwise of the fissure constitute the operation. The next dejection, which is allowed to occur the second or third day, is natural and painless to the great surprise and joy of the patient.

The sailor, by exposure to heat and cold, by wearing damp clothes, by breathing impure air—especially during sleep—by his criminal and habitual neglect of ablution, by a diet too limited as to the number or variety of articles which compose it, and, lastly, by his exhausting excesses in port, becomes a ready victim to *pulmonary consumption*. Of the deaths caused by all diseases treated in this hospital, a mortality of over fifteen per cent., is chargeable to this cause alone. The suggestion of the Supervising Surgeon that seamen be submitted to a medical inspection before shipping and those predisposed to this and kindred diseases be rejected, would, if carried out, largely reduce this preponderance. But much may also be done by improved hygienic conditions afloat.

If sailors do not enter the hospital with *erysipelas* already formed, they do with diseases or conditions of the system predisposing to it. It usually follows operations, not unfrequently the opening of abscesses.^(a) Much may be done by strict cleanliness, and thorough ventilation, to prevent its appearance and spread through a hospital. Its precursors are chills, coated tongue, bad taste in mouth, nausea, headache, and quick pulse. A patient with these symptoms gets blue mass, and, five or six hours after, a saline purgative. We then commence with the tincture of muriate of iron in twenty-drop doses, once in an hour or two through the day, or in three hours during the night. We are convinced that the affection is much more amenable to this remedy when thus frequently given, than when administered, as is the usual

^a Gangrene also follows the opening of abscesses. It is arrested by the application of nitric acid.

custom, three or four times a day. The only external applications used are tincture of iodine and flax-seed meal poultices.

Aneurisms are relatively more common among sailors than landmen. Dr. Bowditch states that the records of the Massachusetts General Hospital show that, from 1821 to 1870, inclusive, there have been eighteen popliteal, five subclavian, four femoral, and one doubtful case of aneurism among sailors.

In private practice aneurismal tumors are found most frequently among the advanced in life; a fact which suggests that this may be owing to fatty degeneration of the blood vessels and their consequent inability to resist the force of the blood, or other causes tending to strain them—causes finding a parallel among sailors in their violent and prolonged muscular efforts in the rigging, at the capstan, the helm, and the pumps, or in rowing and swimming often for life.

Frostbite is common in our wards, more frequently among the colored sailors. It is often due not so much to the degree of cold as to the conditions of exposure thereto. Persons in good health would resist successfully a temperature which seriously affects a crew deprived of substantial food and comforts, or weakened by mental depression and a prolonged struggle with the elements.

The colored seamen not unfrequently arrive on our northern coasts in midwinter very scantily clothed, and if the temperature falls rapidly the result of course is frostbitten digital and pedal extremities.

The destruction of the phalanges is quite common. Meddlesome surgery in these cases is bad; soothing appliances, poultices, application of the tincture of iodine, rest, and a generous diet constitute the treatment. Amputation is resorted to reluctantly, nature being encouraged to separate the diseased from the healthy part herself, lest gangrene should be developed anew.

It is rare to find a sailor in this hospital who has not had *syphilis* or *gonorrhœa*. The sexual passions, ungratified during a long voyage, urge him as soon as he reaches port into excesses which, combined with intemperance and filth, often result in contamination. Seldom taking a bath, and employing local ablution superficially, if at all, it would be strange if he emerged from his debauch without contracting disease.

Syphilis, contrary to the opinion of early writers, invades all the organs and tissues of the body which are vascular, and produces results which are highly destructive. The life of the victim is not only shortened, but made burdensome and wretched. Yet this statement

will not apply to all cases, for there are some persons who, having contracted the disease, experience only in consequence a slight malaise, with, perhaps, a moderate enlargement of the lymphatic glands.

We have also noticed that the interval between the healing of the syphilitic ulcer and what are called *secondary affections*, varies much in different individuals. I know of nothing that will explain this dissimilarity in different patients unless it may be the superior vigor of constitution which some possess over others, and which resists and modifies the syphilitic virus.

Sailors will run all risks rather than forego the gratification of the sexual passion. The often disgusting forms of syphilitic disease of the skin, and the painful complications of the same affection when it attacks the bones, eyes, brain, and other vital organs, are familiar to them; yet to all these forms of disease, painful and destructive as they know them to be, they will expose themselves for a temporary gratification.

In the post-mortem examinations made at this hospital, we have had repeated proofs of the ravages made by this poison in the brain, lungs, heart, and liver, in the shape of “ragged-looking abscesses, with imperfectly-elaborated contents, softening and pulpy degeneration, and tubercular or gummy deposits.”

We do not record a case of tertiary syphilis as cured, but only relieved or much improved. It is extremely difficult, as before intimated, to eradicate this poison from the system so that it will not reappear in relapses, often produced by the most trifling causes—unless, indeed, these relapses are the legitimate operation of the disease itself.

But it should be borne in mind that one possessed of a good constitution, can, by temperance and a vigorous training founded on a faithful adherence to the laws of health, do a great deal to counteract the pernicious effects of secondary and tertiary syphilis in his own person.

In its simple form gonorrhœa is a harmless disease, but when it involves other structures, its complications give much trouble, pain to the patient, and anxiety to the medical attendant. Without stopping to consider phymosis and paraphymosis, with their accompanying œdema, more or less painful affections and often requiring surgical interference, we come to a much more important affection, *organic stricture of the urethra*, produced by frequent attacks of gonorrhœa or neglected gleet.

By the inflammatory process which results from these attacks, plastic material is deposited in and about the urethra, by which its calibre is diminished. A short, violent attack is less liable to lay the founda-

tion of an organic lesion than a mild, but protracted, one. The period of time that elapses between the commencement of the gonorrhœal attack and the administration of remedies, which in the case of sailors is often prolonged, favors the development of organic stricture. When the calibre of the urethra is so far contracted by the deposit of plastic material as to be nearly impermeable, its dilatation is attempted by bougies. This may be the work of weeks. The smallest-sized capillary bougie sometimes fails to enter, even after prolonged, delicate, and varied manipulation. Persevering attempts conducted by a gentle sleight of hand, often sorely vexing the surgeon, generally, however, prove successful, especially if assisted by an injection into the urethra of olive oil, and compressing the same just behind the meatus when the syringe is being withdrawn, so the oil cannot escape. This greatly facilitates the passage of the instrument by the double effect of lubrication and dilatation.

Cystitis is one of the most frequent and serious complications of gonorrhœa, and is caused by the transmission of the virus to the interior of the bladder, and also mechanically by stricture of the urethra. In the last condition, the urine, by being retained in the viscus, becomes alkaline, decomposed, and offensive, often mixed with fibrinous shreds and muco-purulent matter. This disease, which is almost always seen in the wards of the hospital in its chronic form, is treated by frequent warm hip baths, mucilaginous drinks, decoctions of uva ursi, and hops, anodynes, belladonna suppositories, and weak injections into the bladder of acetate of lead, carbolic, and nitric acids.

We have found chronic gonorrhœal cystitis more obstinate and dangerous than some authors would lead us to suppose.

Enlargement of the prostate is another concomitant of gonorrhœa, of a more dangerous character than the preceding, but far less frequent.

Perineal or scrotal fistulæ are among the indirect results of gonorrhœal inflammation, arising from stricture of the urethra, or from forcible attempts to introduce instruments. The laceration of the mucous membrane introduces the urine into the cellular tissue, where it irritates, ulcerates, and suppurates through the integuments.

We have also had cases of *suburethral abscess* as one of the complications of gonorrhœa. Early incision is required to discharge the pus and release the urethra.

As it is certain that the seafaring man will continue to gratify recklessly the sexual appetite, in spite of the restraints of a higher civilization and deeper religious convictions, it is proper to inquire if the risks he incurs by so doing cannot be diminished. The number of

able-bodied sailors is much less than is generally supposed. Possibly one-third are disabled, many permanently so, by reason of syphilis, gonorrhœa, and its complications. If prostitution could be regulated by law—if systematic and periodical examination of public women could be enforced, and those found to be diseased restrained from all communication—syphilis might be diminished, and its enormous evils abated.

But if public sentiment is firmly arrayed against any enactment of this kind, an important advance might be made, if there should be one or more surgeons at each important port, whose duty it was to examine all those who propose to ship in the merchant-marine service. Those who are disabled by syphilitic or other disease should be rejected, and shipmasters and owners thus be relieved of much fraud and expense, the Marine-Hospital Service of an unnecessary burden, and society protected from a great loss.

An experienced and intelligent shipmaster in Boston, Captain Spooner, states that, among the obstacles in the way of the sailor's moral elevation, are the want of ties of kindred; the vicious examples and lack of early moral training; the migratory habits, annulling all love of home, and changing the customs, morals, and influences by which he is surrounded; his inveterate suspicion^(a) of all who would lend him a helping hand, most strongly of his employers and those in authority over him; and the gipsy, vagabond tendencies begotten of his avocation.

Before the condition of the sailor can be improved, it is absolutely necessary, he maintains, that the crimp, sailor-runner, or land-shark, should be suppressed; advance wages abolished; laws passed and enforced in every seaport to prevent desertion, and magisterial and consular aid invoked in the same direction; respectable and comfortable boarding houses established and maintained in every commercial city, and that all others be discountenanced or suppressed.

As an incentive to faithful duty, Captain Spooner recommends that ship-owners stipulate with the sailor who ships at the running wages to pay him, if he perform his duty well, an addition of, say ten per cent. And where vessels have been in condition or places of danger, and the sailor has been faithful in the emergency, some recognition in the shape of a medal or compensation in money would tend to good by increasing his zeal and interest in the service. He is forced, however, to say that several instances have come to his knowledge where the underwriters have been fruitlessly solicited to reward sailors who have done

^a Doubtful.—A. B. B.

signal service in cases of great peril, saving and protecting property. To reward such service he calls a good investment. If individuals who have done meritorious services are recognized and rewarded in the army and navy, and among politicians, policemen, postmen, firemen, conductors, engineers, and others, why should the sailor be exempt?

In conclusion, Captain Spooner contends that schools and school ships should be provided for the education and training of boys with seaward propensities, and a system of compulsory apprenticeship for the mercantile marine should be established by law.

THE SERVICE ON CAPE COD.

THE SERVICE ON CAPE COD.

BY PETER PINEO, M. D.,

Surgeon-in-charge Marine-Hospital Patients, Hyannis, Mass.

CAPE COD is a promontory which extends from the southeastern coast of Massachusetts some sixty-five miles into the Atlantic ocean, having an average width of about four miles, and more than one hundred and fifty miles of coast-line, with a population of over forty thousand, the majority of whom are seamen, and almost every one of whom expects to be the commander of a ship. Six hundred sail of vessels are owned and hail from the different ports in the district.

The character of the seamen on this Cape, compared with the class of sailors, hailing from all nations, usually found about our principal seaports, is of a high order. Certain diseases most common with seamen are comparatively rare among the Cape men. The reasons for their superior condition and more provident habits may be found in the home influences surrounding them, and which they manage to preserve.

At whatever port on the Atlantic coast these seamen may arrive from a long voyage, whether sick or well, they proceed forthwith, if possible, to their homes, not waiting to spend their money in drinking and riotous living, but taking their hard earnings to their families, there to enjoy a brief respite and the blessings of home life—

“His clane hearth-stane, his thrifty wifie’s smile,
The lisping infant prattling on his knee,
Do a’ his weary carking cares beguile,
An’ make him quite forget his labor and his toil.”

The fostering of these domestic virtues, with their incentives to temperance, industry, and laudable ambition, is alike important to the sailor and to the welfare of the country, and a direct result is seen in the better physique, the higher reputation for seamanship, and the larger proportion of officers among the men who hail from a region which has not inaptly been called “the nursery of American seamen.”

The General Government, however, has shown herself something of a stepmother in her care, or want of care, of this nursery. There are nine ports on the Cape where application may be made by seamen for hospital relief, but at no one of them is there anything like suitable provision for their care; nor can there be without some small public

outlay; for want of which, although 6,618 days' hospital relief was furnished during the last fiscal year, many sailors who were entitled to assistance from the marine-hospital fund, and who would have preferred being treated in the vicinity of their own home ports, were obliged to go to Chelsea or New York for treatment.

Many cases are put on shore, sick, from the numerous coasting vessels which pass through Vineyard Sound and hug the coast on the south shore of the Cape; and in winter shipwrecked and frostbitten sailors are often cast on shore in numbers far beyond the capacity of the hospital accommodations at any of the ports.

The Service has never owned a hospital building in the district; but relief has been furnished in small private hospitals, totally inadequate to the emergencies, and at best with indifferent accommodations.

The establishment by the Government of a suitable hospital on the pavilion plan, at some central point, and of capacity sufficient to accommodate the entire district, would not involve an expenditure of over \$15,000. The medical officer of the district might have his headquarters at this hospital, and transfer to it patients from the private hospitals at other ports, when, in his judgment, they would thus be better cared for, or the interests of the Service be subserved by such transfer. Its position should be so central that ready access could be had to it, not only by the patients themselves, but by their friends and families.

Such a measure would satisfy a great want, and do simple justice to a most deserving portion of the mercantile marine, on whom, in time of emergency, the country must largely depend for the manning and commanding of gunboats and transports, and recruiting our Navy generally.

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THE FREEDMAN AND THE SERVICE ON
THE OHIO.

THE FREEDMAN AND THE SERVICE ON THE OHIO.

BY P. H. BAILHACHE, M. D.,
Surgeon United States Marine-Hospital Service, Louisville, Ky.

PROBABLY no class of men are more improvident than those who seek employment upon the water—whether it be the sailor upon the high seas, or the less pretentious boatman upon our inland waters. This, taken with the well-known fact that the negro has always been a dependent, places the freedman in a position where the benefits arising from the United States Marine-Hospital Service are prominently manifest, and where the Service itself cannot but be commended by all who have given its workings a thoughtful consideration. Before the emancipation of the slaves in the Southern States the few who were employed upon our river boats had their masters to look to for protection and assistance; but now that they are thrown upon their own resources, and especially since the number seeking employment upon our water-craft has increased while the demand for such labor has fallen off, (owing to the increased number of railroads,) their only recourse, in case of sickness or desertion, is the kindly provision of the Government through its Marine-Hospital Service.

Until after the reopening of the marine hospital at the port of Louisville—since the Civil War—the admission of a freedman to the city hospital was not a possible thing to be accomplished; but now black and white are alike admitted and the treatment of each is the same. This departure from the old-time rule is the result of no Government interference, but merely the natural sequence of events following the admission of all classes to the marine hospital at this port. The same result doubtless obtains at other southern ports where marine hospitals are established.

The employment of freedmen upon water-craft on the Ohio river is nearly one-third in excess of that of whites, while the admission to hospital of each class is about equal. For example, at the port of Louisville, which is a fair index to the others, there were treated in the marine hospital during the last fiscal year 236 whites and 258 freedmen—a difference of only 22. It has been suggested that the reason for this difference lies in the difficulty which freedmen experience in obtaining the necessary papers from their boats to enable them to

enter hospital—no one admitting for a moment that the negro is more healthy or hardy than the white. But upon investigation I am led to believe that the true reason for this disproportion in favor of the freedmen can be found in the fact that the lighter and less exposed duties of cabin boys, waiters, and porters, which in the main fall upon this class, render them less liable to the non-preventable diseases incident to river employment, and that freedmen as well as whites are equally supplied with masters' certificates upon application. It is true, however, that in some instances a brutal mate—through whom application for master's certificate is generally made—will indiscriminately refuse to obtain one, and will put sick men, white or black, ashore at the first landing, whether there be a marine hospital at the port or not.

The workings of the Service upon the Ohio and other inland rivers are not as perfect as is desirable, for the reason that the *Regulations* governing them are not always applicable. The master's certificate, as an evidence of the payment of hospital dues, is almost valueless. No method has yet been devised by which officers of the Service can satisfy themselves of the truth of the statement contained therein, there being no list of employes furnished the customs officer by the master of the boat, nor can there always be. The crew of a steamboat plying up and down the Ohio river may be changed at every port between Pittsburg and Cairo. Unlike the crew of a sea-going vessel, which is employed by the month or longer period, the deck-hand, or "rouster," may be employed by the day or hour. It is, therefore, impracticable for the master of the boat to comply with paragraphs 6 and 7 of the *Regulations*, and, consequently, impossible for the customs officer or surgeon to verify the master's certificate, (Par. 27.) Nine-tenths of all master's certificates presented by applicants for relief show but a few days' or weeks' service on the boat from which it was obtained; but the applicant will, in nearly all cases, make oath that he has served continuously for years upon the river, and that each boat has collected the full amount of hospital tax for the *month*, though he may have been on the vessel only a few days. Not infrequently he pays it twice over on the same boat, if he happens to ship on her more than once during the same month. In other words, the men change from boat to boat almost daily, and hospital dues are collected from them by the master every time they are paid off.

Requiring the master of the boat to sign the master's certificate, if literally complied with, would work hardship to suffering river men; and the evidence furnished by other officers of the boat, or even the wharf master, has frequently to be taken. Unlike ocean steamers,

our river-craft barely touch at a landing, and are off again, perhaps leaving a barrel of salt, perhaps a sick freedman. If the latter, ten to one, he has been put ashore without a complete certificate, perhaps with none at all; and, with no home but the river, he would die upon the landing were such irregularities counted against him.

So far as I am able to judge, the collection of hospital dues is attempted, and that imperfectly, at very few of the ports on the Ohio river. To remedy this defect, and secure a more thorough, uniform, and systematic collection, I would recommend that customs officers be authorized and required to examine the "port book" of all boats applying for registration or enrolment. This is now done at the port of Evansville, Indiana, with the most gratifying results.

In referring to the payment of hospital dues by freedmen and others, I neglected to state in the proper place that the crews of a few of the larger boats are employed by the month, and pay their dues monthly, and that one or two boats collect no dues from their crews, but pay it for them. With these exceptions, the condition of things is as I have stated above.

The ports on the Ohio river at which medical and surgical relief is afforded to marines are: Pittsburg, Pa.; Cincinnati, Ohio; Louisville, Ky.; Evansville, Ind.; and Cairo, Ill. At the first-named place the old United States marine-hospital building has been closed and a new one is soon to be built; in the meantime, patients are cared for by contract, Dr. George Purviance surgeon-in-charge. At Cincinnati relief is furnished in the Good Samaritan Hospital, a substantial building, formerly a United States marine hospital, and a corps of experienced medical officers is in attendance. At Louisville an old United States marine hospital, much out of repair, is in use, Dr. Thomas J. Griffiths surgeon-in-charge. At Evansville the building is also an old United States marine hospital, the present owners of which provide for the marines, furnishing everything in a most satisfactory manner; the medical care is under the immediate charge of a corps of officers connected with a neighboring college. At Cairo the marines are well cared for in a very neat hospital, under Dr. Horace Wardner, the medical officer in charge.

All these hospitals are under the direct supervision of the Service, and every freedman receives the same care and the same quality of food that is bestowed upon the white marine; but separate wards and dining-rooms are provided for each class. There is probably no other employment wherein class distinctions are less thought of than upon our river steamers. Deck-hands of all colors and nationalities work,

eat, and sleep together, regardless of exteriors, and their wages are the same.^(a)

Like similar "professions" this has its own vernacular to express its cuisine, and, in this instance, the class of boat which furnishes it. For instance, on the large, first-class steamers, where everything is liberally supplied, "side-wheel duff" fully expresses to the mind of the average "rouster" the condition of things gastronomical; the next grade is known as the "stern-wheel duff," where scrambled eggs, bread, fish, and scraps from the officers' tables, &c., form a heterogeneous compound; the lowest grade is the "pigeon-wheel duff," and all the grades more or less shade off into each other, depending on the amount of business the boats are doing. There is no complaint as to the fare, which is generally substantial and abundant.

No less expressive is the name given the resting place of the "rouster" during his few minutes of repose day or night, for no accommodations are furnished by the boats. If it is cold weather, "the St. Charles" is sought after, and that is under the boilers; if it is summer, "on the barricades" is the cry, and each one seeks a resting place upon the softest freight he can find—lucky the one who can secure a sack of grain or a bale of cotton for his bed.^(b)

The working tour of a marine embraces the entire twenty-four hours of the day and night; and when it is known that Ohio-river boats, on an average, make landings to take on or discharge freight every half hour in the twenty-four, the wonder is that these men can live on year after year with such irregular habits.

But this is not all. Like the sailor, our river men, white and black, are their own worst enemies. They are not only improvident; they are debauched—intemperate and licentious. Nearly all their wages are charged up against them at the bar, and if, by chance, they get a little money ahead, they leave their boat at the first convenient port to satisfy their licentious desires, nor do they hesitate to carry with them the pocket-book or extra clothing of a more steady comrade. Of course, there are some honorable exceptions to this wholesale charge, but they are exceptions.

The causes which have led to this depravity are manifold: a precarious life upon the water, subject to the caprice of their master, the mate; entire lack of moral or religious training or restraint; working at all hours, day or night, Sunday and weekday alike; no hope for anything beyond their daily grog or a chance to shirk the work imposed upon them. How can anything better be expected from them?

^a Wages range from 85 cents to \$1.25 per day, or \$25 to \$35 per month.

^b The transportation inland of contagious and epidemic diseases by this means will be treated of in a future report.

Naturally enough, with such surroundings, the diseases specially incident to the marine, are of a specific and preventable character. At the port of Louisville, there were treated in hospital, during the past fiscal year, 258 freedmen and 236 whites. Of these, 45 whites and 57 freedmen suffered from syphilis or its sequelæ. At the Cincinnati hospital, 159 freedmen were furnished relief, 52 of whom were syphilitic. At Cairo, 11 per cent. of all cases treated were syphilitic; and so elsewhere. The Service has grappled with this evil, and done all that it can do under the present legislation. There is but one remedy, and that hardly a practicable one upon our rivers, however it may be upon the high seas: Require a physical examination of all sailors before shipping. To elaborate the idea would require more space than I can give in this paper; but with some such authority, the Service would soon rid itself of unseaworthy seamen, and the hospitals be relieved of one-fourth of their inmates.

Rheumatism, fevers, and dysenteries, in the fall and winter; diarrhœas and miasmatic diseases in the spring and summer, go to fill up the quota of marine-hospital patients. Sunstroke among the freedmen we never have, and but little among the whites; but both whites and blacks are an easy prey to low forms of fever.

The injuries received are generally of a minor character: Sprains, contusions, and occasionally a broken limb, comprise the sum total. Neglect of bruised shins not infrequently results in what is known as the "sailor's old leg"—a chronic, indolent, sometimes varicose, ulcer, covering nearly the entire front of the leg, and almost incurable.

Not infrequently a sick freedman falls into the hands of a "boat-house" proprietor, who keeps him as long as his money lasts, and then turns him adrift, or, perchance, sells him a master's certificate (which was purloined from a former lodger) for the very coat off his back. A "boat house" in Pittsburg did quite a thriving business in this way, until it was broken up by the surgeon who made the discovery.

The comforts of a marine hospital are in such strong contrast with the hardships of the river, especially in winter, that the "rouster" frequently endeavors to make what is intended for his temporary relief, an asylum for idleness and ease after recovery. That this is receiving the attention of the surgeon now having the matter in charge at the port of Louisville, is shown in the fact that, with a decrease of only 155 admissions to hospital during the past fiscal year as compared with the year previous, there was a falling off of 10,863 days of relief furnished, or a saving of nearly \$10,000. A similar improvement may be looked for in the future at other ports upon the Ohio river.

DISEASES OF RIVER MEN—THEIR CAUSES
AND PREVENTION.

DISEASES OF RIVER MEN—THEIR CAUSES AND PREVENTION.

BY HORACE WARDNER, M. D.,
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THE Mississippi river, with its bayous and tributary streams, furnishes sixteen thousand six hundred and seventy-four miles of navigable waters. The great amount of shipping on these waters gives employment to many thousands of men who are constantly changing their locality from one place or river to another. The great majority of them are without any purpose in life save the gratification of their appetites. They have no settled home, and are consequently without its beneficial influences. The officers under whose immediate supervision they are employed are often extremely brutal and tyrannical. Many are large, powerful men, who are ready to enforce a command with the fist or a club on the slightest provocation. The men are also notoriously intemperate and improvident. They seldom lose an opportunity when in port of "getting on a drunk," not unfrequently ending in a row in which pistols, knives, or clubs are freely used. When unemployed they are inclined to continue their indulgences to a greater or lesser extent until their money is gone, or they become sick and disabled. Many of these men are outlaws, avoiding the penalty for offences against the peace of society, and resort to this occupation for a livelihood, passing under assumed names, changed for different localities. Their occupation and surroundings afford many opportunities for theft and robberies, and even murder, with a fair prospect of escaping detection. On this account the business is attractive to a certain class of men who have forfeited their claims to respectability and confidence. By their criminally improvident habits they become, when sick and disabled, dependent upon charity, or the means and accommodations which the Government has provided for them.

In the hospitals we find them principally suffering from diseases contracted under the exposure incident to their vocation on the water, and their intemperate and lewd habits on the land.

The register of the hospital at this place shows an aggregate of 2,161 patients treated up to the first of August, 1874. These are entered under a list of eighty different diseases. The malarial fevers show an

average of 20.82 per cent. of the whole; dysentery and diarrhœa, 9.9 per cent.; acute diseases of the respiratory organs, 5.87 per cent.; rheumatism, 7.63 per cent.; small-pox, 4.25 per cent.; contusions, wounds, fractures, and other injuries, 12.34 per cent.; and venereal diseases, 17.57 per cent. The latter are nearly all syphilitic, simple gonorrhœa being rarely admitted to hospital for treatment.

It seldom happens that a river man enters hospital who has not had syphilis at some time during his life. Partly because of indifference to it, and lack of perseverance in treatment, the syphilitic disease in these men is seldom if ever fully eradicated. The local evidences may be removed, but there remains a syphilitic cachexia which complicates other diseases that may supervene, and which are thus rendered much less amenable to treatment. So true is this, and to such an extent does it modify and affect the course and result of disease among river men, that it becomes of the first importance to recognize its conditions and influences, with the view of determining what, if any, preventive measures may be successfully adopted. And in this consideration it is well to remember that we must take society as it is, and not our ideal of what it should be.

Ever since the organization of society, the subject of prostitution has been one of interest to statesmen and legislators; and although many stringent laws have been ordained in regard to it, the subject seems no nearer a solution now than at any time during the history of mankind. Thus far, judged by results, it has been utter folly to try to legislate prostitution out of existence.

The only progress yet made has been by endeavoring, in the light of modern science, to so regulate promiscuous sexual commerce as to prevent, so far as possible, the sad effects of venereal disease. Such regulations, where they have been enforced, seem to have diminished the army of prostitutes and checked to some extent the spread of the disease.

But such legislation has been ineffectual, and failed of the end in view, because it has all been one-sided. The fact seems to have been ignored, that there is necessarily in each case a male who may communicate disease as well as the female. If females are to be subjected to inspection at stated periods, and, if sound, furnished with a certificate of the fact to show to their patrons, is it any more than just that males desiring intercourse with these women should also be required to exhibit a like certificate, for the protection and safety of the females? I believe the social-evil problem will never be solved until laws and regulations are made and enforced as strictly with one sex as the other. Let houses of prostitution be subjected to police regulations on the

basis of equality of the sexes under the laws, and I believe syphilis might be eradicated.

Should the time ever come when such regulations will be established, seamen and river men will have one less cause for disability and hospital care and treatment.

Another great source of evil to these men is intemperance. It is unnecessary to speak of the vile compounds which are retailed in the grogshops along these rivers. Enough has been done to show that intemperance cannot be prohibited by any means yet devised. The human appetite seems to crave stimulants. If native wine and beer could be made to take the place of whiskey, the great American drink and the bane of society, much would be accomplished toward ameliorating the condition of the intemperate. It is probably too Utopian to expect that laws may be enacted by the General Government discriminating against the latter and favorable to the former, so as to eventually suppress the manufacture of the more injurious whiskey, and supply its place with the milder and less harmful native wines and beer. But it is to be hoped that a time may come when our legislators will be above sordid and mercenary influences, and work for the best good of all the people in this respect. This time may be far off in a Government like ours, but much depends on the intelligence of the masses in coming to an appreciation of what course is best for all.

Meantime, some of the money annually sent to foreign countries, to convert very respectably-behaved and civilized heathen, could be at least as well spent in providing for the moral instruction of these men at home. If in every port of any considerable size a rendezvous were provided where these men could receive proper instruction and suitable books, papers, and amusements, to occupy them when unemployed, much could be accomplished toward elevating the moral standard among them.

On these river steamers the men below the rank of deck hands are very poorly cared for as to bedding, quarters, and accommodations for personal cleanliness and comfort. The sleeping apartments, where these do exist, are very small and filthy, and, consequently, unhealthy. By attention to these particulars, much could be done toward the amelioration of their condition, making them better men in their places.

The wealth of a nation depends upon its productions, and these require brain and muscle. Whatever tends to impair the fertility of brain or the strength of muscle tends to impoverish, and whatever tends to preserve these forces tends to prosperity.

PREVENTABLE DISEASE ON THE GREAT
LAKES.

PREVENTABLE DISEASE ON THE GREAT LAKES.

BY JAMES M. ALLEN, M. D.,
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IN the following article I shall endeavor to show from the records of the hospital under my charge that much of the disease treated therein may be more or less completely prevented by proper sanitary and police measures. In order to exhibit this clearly as a practical conclusion, the result of a careful study of actual facts, I have compiled from our records a set of brief tables:

I.—*Record of all Diseases and Injuries treated at the Milwaukee Marine Hospital from January 1, 1870, to August 1, 1874.*

Diseases.	No. of cases.	Diseases.	No. of cases.	Diseases.	No. of cases.
Tertian intermittent fever.	126	Delirium tremens.....	3	Anasarca	2
Quotidian intermit'nt fever	31	Sciatica	1	Asthma	2
Remittent fever.....	25	Colic	1	Periostitis	1
Rheumatism, acute.....	11	Peritonitis, acute	1	Catarrh	1
Rheumatism, chronic.....	33	Conjunctivitis	6	Paralysis	2
Primary syphilis.....	27	Granular lids	2	Scabies	1
Constitutional syphilis.....	19	Psoriasis	2	Dyspepsia	1
Gonorrhœal orchitis.....	13	Neuralgia.....	2	Epilepsy	1
Bubo	9	Furuncle	3	Irritable bladder.....	1
Bronchitis, acute.....	14	Pyelitis	1	Erysipelas, acute.....	5
Bronchitis, chronic.....	11	Small-pox	5	Bruise	32
Diarrhœa, acute	10	Aneurism popliteal.....	1	Sprain	21
Diarrhœa, chronic.....	3	Fistula urethral.....	1	Fracture, simple	16
Pleurisy, acute	1	Ulcer	26	Fracture, compound.....	3
Phthisis pulmonalis.....	18	Adenitis	1	Burn	3
Dilatation of heart.....	1	Cholera morbus	2	Scald	3
Headache	4	Jaundice	1	Concussion, spine.....	1
Abscess	9	Ictus solis	1	Concussion, brain.....	1
Synovitis	7	Dysentery	2	Lacerated wounds.....	21
Gastritis, chronic	1	Hæmorrhoids	5	Gunshot wound	1
Pleurodynia	5	Typhoid fever.....	9	Amputation for injury	6
Felon	8	Lumbago	2	Frostbite	7
Fistula in ano.....	3	Pneumonia, acute.....	6		
Cerebro-spinal meningitis	3	Anchylosis	1	Total.....	609

The above table shows a total of 609 cases of all diseases and injuries. If we deduct from this the total of injuries alone, as shown by—

II.—*Cases, the result of external violence, treated from January 1, 1870, to August 1, 1874.*

Nature of injury.	Cases.	Nature of injury.	Cases.	Nature of injury.	Cases.
Bruise	32	Scald	3	Amputation	6
Sprain	21	Concussion, spine.....	1	Frostbite	7
Lacerated wound.....	21	Concussion, brain.....	1		
Simple fracture	16	Gunshot wound.....	1	Total.....	116
Compound fracture	3	Urethral fistula, from injury	1		
Burn	3				

there remain 493 cases of disease proper.

Of these 493 cases, it appears by—

III.—*Cases of Malarious Disease treated during above period.*

Tertian intermittent fever.....	126
Quotidian intermittent fever.....	31
Remittent fever	25
Total.....	<u>182</u>

that 182 were of directly malarious origin, and consequently partially preventable by proper care and prophylaxis.

Again: of this total of 493 cases, we see by—

IV.—*Cases of Venereal Diseases treated during above period.*

Primary syphilis.....	27
Constitutional syphilis.....	19
Gonorrhœal epididymitis.....	3
Bubo.....	9
Total.....	<u>68</u>

that sixty-eight cases were directly of venereal origin, and at least partially preventable by proper police regulations.

To the above may be fairly added, as belonging to the class of preventable diseases, at least one-half, say sixteen, of the cases of chronic rheumatism, as unquestionably resulting from syphilitic infection; the five cases of small-pox as directly preventable by proper measures as to vaccination; and one-half the cases, say twelve, of ulcer, as more or less remotely syphilitic in origin.

It appears, then, from

V.—*Diseases more or less preventable by proper sanitary and police regulations.*

Malarious diseases.....	182
Venereal diseases proper	68
Small-pox	5
Other diseases, the result of venereal taint.....	28
Total.....	<u>283</u>

that, in a total of 493 cases of all diseases treated at the Milwaukee marine-hospital for the years above specified, 283, or much more than one-half, belong to the class of preventable diseases, by which I do not mean diseases which can be wholly blotted out of existence by proper prophylaxis, but only such as may be greatly diminished in amount thereby.

With regard to the malarious diseases treated at this hospital, viz., remittent and intermittent fevers, being 182 cases out of 493 cases of all diseases proper, or nearly two-fifths of the whole, almost all these originate on the malarious coast of Michigan.

Now it is evident that much might be done in the way of prevention in this class of diseases by obliging owners and officers of vessels trad-

ing to malarious districts to conform to a code of sanitary regulations. Thus, it might be required of such owners and officers, that they should, as far as possible, keep their vessels at a considerable distance from a malarious shore; that they should not allow their vessels to lie in the rivers of malarious districts at night, unless absolutely compelled to do so; that they should maintain fires on board their vessels after night-fall; should oblige their men to remain below decks in dry, warm places at night; should require them to be warmly clad when exposed to malaria; should fortify their systems by warm coffee or food before such exposure; and should take such other precautions as experience has shown to tend to guard the human frame against the poison of malaria.

The observance of such precautions might be made by law obligatory on owners and masters of vessels. Vessels might also be required to carry a proper supply of quinine and other antidotes to malaria, and be furnished with plain instructions as to the most approved method of using such medicines, both as prophylactics against malarious disease and as a means of cutting it short, as soon as it makes its appearance.

It may be said that it would be wholly impracticable to enforce the carrying out of such a set of sanitary and medical regulations, but I believe a simple code could be framed which, if not carried out to the letter in practice, would at least have a great influence upon the medical stores carried on board vessels and upon the conduct of the officers and care and treatment of the men, great enough to very materially diminish the amount of malarious disease treated at the Lake hospitals.

Table IV shows the proportion borne by venereal disease to the whole mass of disease treated at our port, viz: 68 cases out of 493, or about one-seventh of the whole. These diseases belong, emphatically, to the preventable class, and especially, as they affect sailors. It is a lamentable fact that, as a general rule, the first thing a sailor does on landing from his vessel, is to get drunk, and the next to go to a house of prostitution. Being usually a stranger in the town where he lands, he goes to a public brothel, and not to those more private places where the inhabitants of cities, who are supposed to be "posted," resort. Hence a proper police system for the regulation of the "necessary evil," for licensing houses of prostitution, and registering and medically examining their inmates, would give to sailors greater protection against venereal disease than to any other class of men. Without discussing the moral aspects of the question, I cannot but be convinced that such a police system would prevent a vast amount of disease

among our lake sailors, not only of a directly venereal character, but also much that remotely springs from or is superinduced by the debility and cachexia which result from syphilitic infection. To me, then, it seems that it would be wise for the proper authorities to use their influence, as far as may be possible, to bring about the inauguration of such a license system for prostitution in our lake cities from purely economic considerations.

There are but five cases of small-pox recorded in our tables, but in years when small-pox is epidemic that number may well be enormously exceeded, and it would be for the interest of the Marine-Hospital Service that all owners and masters of vessels within the United States should be forbidden by law to ship men unless they could show satisfactory evidence from a marine-hospital surgeon that they have been properly vaccinated or revaccinated within a specified number of years. Such a regulation could be easily enforced.

Besides the malarious, venereal, and contagious diseases, there are others toward the prevention of which something might be done by a code of regulations, enforcing proper sleeping accommodations, food, fire, &c., for seamen. I will not now attempt to make any suggestions on these points. All that I have aimed at above is to endeavor to show, from actual statistics, that much may be done by prophylaxis to reduce the amount of disease treated at Milwaukee and the other lake-port hospitals, and consequently to diminish the expense of those institutions, and to bring the Marine-Hospital Service at those ports to a self-sustaining condition.

SYPHILIS: THE SCOURGE OF THE SAILOR
AND THE PUBLIC HEALTH.

SYPHILIS: THE SCOURGE OF THE SAILOR AND THE PUBLIC HEALTH.^(a)

BY FRED. R. STURGIS, M. D.,
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IN this attempt to answer the question, How does Syphilis affect the Public Health? it has been found convenient to divide the investigation into the following heads:

- I. Is syphilis of common occurrence?
- II. Can it be considered a disease fatal to life?
- III. Does it favor the development, or fatally influence the course, of other diseases?

In answering the first question it is necessary to preserve the distinction between the different varieties of venereal diseases, viz: gonorrhœa, chancroid, so-called, and syphilis proper, and to this latter is attention, in this answer for the most part, confined.

In collecting statistics the sum total of poor patients treated during the year 1873 at the various hospitals and dispensaries of New York City was first obtained. Selecting a certain number of these institutions, their records were then examined, and from these the number of patients treated during two months of the year was ascertained—January and August being selected as presenting a fair average. Of these patients the number afflicted with venereal diseases, and of these venereal patients the number who were the subjects of syphilis, acquired and congenital, were next ascertained. And with this knowledge as a basis, an estimate was made of the total number of venereal and syphilitic poor patients and the percentage they bear to the total number. This, however, disposes only of those who come for treatment to public institutions, and does not include those treated at their homes, at physicians' offices, by apothecaries, and by quacks. Admittedly only an estimate, and one inherently defective, from the impossibility of obtaining any absolutely positive knowledge on the subject, still the figures are of some value in determining whether the disease is widely spread or not; and such estimate is thought to be

^a Abstract of a paper read at the Philadelphia meeting of the American Public Health Association, November, 1874.

more useful than vague statements based upon personal belief, or from statistics gathered from one's own private practice. This is obvious at a moment's glance. A specialist in this class of diseases, judging from his own experience alone, might say in his haste, All men are syphilitic. While another who saw but little of it would as confidently assert that it was comparatively rare. Both would be wrong—the truth probably lying in that golden mean between the two statements, which from time immemorial has been declared as the safest course.

In the United States, the Army statistics between the years 1840 and 1859 show a mean strength of 187,144 men; of these, 2,169 suffered from syphilis, a percentage of 1.1. For the five years from 1870 to September, 1874, inclusive, the total mean strength of the Army in the Department of the East was 35,206; the total number of venereal cases was 2,920, while the total number of syphilitic cases was 1,488. Expressed in percentages, that of venereal cases to total strength of Army would be 8.29; of syphilis to total strength of Army would be 4.22; and of syphilis to total venereal, 50.95.

The reports of the Supervising Surgeon, U. S. Marine-Hospital Service, for 1872 and 1873, give the total number of patients treated at 24,645. Of these, the venereal cases amounted to 4,170, or over 16.92 per cent. of the total number of patients; and of these venereal cases, 3,779, or over 15.33 per cent. of the total number of patients, were syphilitic. The percentage of syphilis to all venereal diseases was over 90.38 per cent.

The reports of the mercantile marine of New York City give a still more disastrous result. From January, 1871, to October, 1874, the total number of patients was 6,275; of these, the venereal cases amounted to 1,532, or over 24.34 per cent. of the total; and of these venereal cases, 1,016, or over 16.19 per cent. of the total, were syphilitic, the percentage of syphilitic to all venereal cases being over 66.31 per cent.

Of the British Army, the reports for 1869, 1870, and 1871 have been consulted; and for that period, we find the mean strength of the Army to have been 388,221. Of these, 58,960, or over 15.18 per cent. of the whole Army, were treated for venereal disease; and of these, syphilis is credited with 29,851, or 7.68 per cent. of the entire force.

Of the United States Navy, the statistics of the naval hospital at Brooklyn, for the years 1870 to 1874 have been examined. The total number of patients admitted into hospital for those five years was 1,385; of which, 199, or 14.36 per cent., were venereal. Of these venereal cases, 119, or more than 85.9 per cent., were due to syphilis. The percentage of syphilis to total venereal diseases being over 59.79 per cent.

In New York City there are forty-six hospitals and dispensaries, in which 280,536 patients are annually treated. During the months of January and August, 1873, the total number of patients treated at these hospitals and dispensaries amounted to 32,549; of this number, 1,458 were venereal cases, 595 being due to syphilis. Expressing this in percentages, that of venereal to total number treated is 4.4 per cent., or 44 in every thousand patients; that of syphilitics to total number treated is 1.8 per cent., or 18 in every thousand patients; and that of syphilitics to total number of venereal cases is 41 per cent., or 410 syphilitics in every thousand venereal patients. If, now, we estimate the total of poor persons who received gratuitous medical aid in New York during 1873 as 280,537, and compute the percentage of venereal at 4.4 per cent., we find that in this city the indigent venereal amount to 12,341 persons, and that, out of this number, 5,045 are cases of syphilis; but this manifestly takes no cognizance of private cases. What proportion of venereal shall we assign to them? In the statistics of the Marine-Hospital Service—and these are perhaps as good as any upon which to base an estimate, coming as they do from official sources—we found the percentage of venereal to total number of cases ranging from 16 to 24—call it, as an average, 20 per cent. That would be five times as much as the percentage above ascertained for the venereal poor of New York, thus leaving four-fifths to be accounted for. In the reports we found that the percentage of syphilis to total number was over 16, that is about ten times as much as the above estimate, thus leaving nine-tenths to be accounted for. If we adopt this view, we should have a total of 49,364 persons treated privately for venereal diseases in New York City, of which number 45,405 would be syphilitic; in other words, out of a population of 942,294, there would be 61,705 persons suffering from venereal diseases in some form or other, and of this number 50,450 would be afflicted with syphilis.

To avoid, as far as possible, all sources of error in calculating the statistics of public institutions, besides examining the books of the skin and venereal departments of the hospitals and dispensaries, those of the women's, children's, and surgical departments were also examined; and, notwithstanding all the care taken, it is believed that the true amount of syphilis, even among the poor, exceeds the amount here stated. And this opportunity is taken of pointing out how defective and careless the registration of patients seems to be—a well-kept record book being the exception—thus rendering accurate statistics well nigh impossible.

From the calculations of Mr. Wagstaffe in the English Records, we

find the proportion of venereal to total number of poor patients, as given by that gentleman, to be 6.92 per cent.; of syphilitic to total number of poor patients to be 3.53 per cent.; of syphilis to all venereal diseases to be 51 per cent. Compare these with the corresponding estimates above given of 4.4 per cent., 1.8 per cent., and 41 per cent., respectively. Mr. Wagstaffe's observations are based upon time varying from one day to one week; and he says, in summing up his report: "If this report be considered extensive enough (and it comprises about a week's observation of, presumably, one-quarter of the sick poor of London) to warrant general deductions being made, it may be inferred that, among the million and a half of poor population of the metropolis who receive medical relief for disease at hospitals, dispensaries, work-houses, and at the hands of the medical officers, during the year, nearly seven per cent., or about 1 in 14, are affected with venereal disease of some kind. These numbers, it must be remembered, do not include midwifery cases."

In the absence of the official returns of the French Army and Navy, the figures recently furnished by M. C. J. Lecour, *Prefêt* of the French Police, in his report *La Prostitution à Paris et à Londres*, are here given. M. Lecour states that, in 1868, 9,796 venereal patients were treated in Paris at the hospitals, including the four military establishments of Val de Grâce, Gros-Caillo, Saint Martin, and Vincennes. This includes no private cases. He then goes on to say: "Without fear of being taxed with exaggeration, we may consider these figures as one-fifth of the total number of venereal patients in Paris who are treated at their homes by physicians, or who seek relief at the hands of apothecaries and charlatans. If this be so, we get a sum total of 48,980 cases, a formidable array, but one probably much below the real amount."

It would be of little use to continue any further statistics; and these are presented, indefinite as they are, and ranging between such extremes, for the purpose of showing that the disease is probably widely spread. Mr. Acton's statistics, as well as those of a writer in the *Westminster Review* for July, 1869, are purposely omitted, because both writers seem to have fallen into error in computing the percentages of the disease. They have, apparently, only examined the registries of surgical out-patients, omitting the retaining divisions of the hospitals, and this gives no idea of the true percentage, inasmuch as to these surgical clinics venereal patients are more largely admitted than others. Their figures range from $37\frac{1}{2}$ to 50 per cent.; but although this may be true of one department alone, it is by no means so of the

entire hospital; and if we start with these percentages as a basis, our estimates will be altogether too large. Abundant as venereal is, it must be agreed that it is too much to accuse one out of every two or three persons as being diseased.

The answer to the second question, Can syphilis be considered the cause of a large number of deaths? must be a decided negative. An English writer on this subject says: "I have now and then cases of tertiary symptoms which return again and again and offer most rebellious instances of the virulence of the disease amongst the weak and the debilitated; but still death from syphilis is almost unheard of." (Acton.) And even among the poorer classes of society death from this cause is not common.

For clearness in dealing with this subject, the deaths from acquired and congenital syphilis are separated, so that we can see plainly in what class of cases syphilis is especially to be dreaded. The statistics from four of the leading London hospitals, St. Bartholomew's, St. Thomas's, St. George's, and the London, from the Charity Hospital on Blackwell's Island, N. Y., and from various other sources, have been compiled; and to those who think acquired syphilis a fatal disease the result will be surprising.

At St. Bartholomew's, for twelve years, (1860 to 1871, inclusive,) 2,292 cases of syphilis were treated; of these 23 died, a little over one per cent.

At St. Thomas's, for six years, (1866 to 1871, inclusive,) 130 cases were treated; of these, six died—a little over four per cent.

At St. George's, for five years, (1866 to 1870, inclusive,) 287 cases were treated; of these, five died—more than one and one-half per cent.

At the London, for three years, (1863 to 1865, inclusive,) 209 cases were treated; of these, seven died—a little over three per cent.

At the Charity Hospital, Blackwell's Island, for four years, (1854 to 1857, inclusive,) 5,668 cases were treated; of these, fourteen died—a little over two-tenths of one per cent.

It may be urged against these statistics that, although deaths in the hospitals were so few, many may have died outside—accidents which have not been taken into account. But this objection, upon examination, is found to be more apparent than real: First, because the cases admitted into hospital are the severe ones, such as would be most likely to prove fatal; in fact going into hospital is looked upon as the *dernier ressort*; and, second, extending, as these observations do, over a series of years, those cases which ultimately prove fatal would probably return to hospital to end their days, and would thus finally figure in the reports. If, therefore, we find such good results under the

unfavorable conditions that hospital patients generally present, we may fairly assume that the mortality outside is not very great.

The figures just considered comprise only the secondary and tertiary forms of the disease, the primary lesions and congenital cases being purposely omitted, because the former never, in themselves, prove fatal, and because the latter do not come into a consideration of deaths from acquired syphilis.

We have, then, a total of 8,586 cases, out of which we count fifty-five deaths, or .64 of one per cent. Let us see what are the causes of death in these cases. On this point the London and Charity Hospitals are silent. St. George's gives the cause of one only—œdema glottidis, from necrosis of the thyroid cartilage, causing suffocation; St. Thomas's gives one where the patient died from the effects of gummata of the brain; and St. Bartholomew's gives the cause of fourteen of its twenty-three cases. They are: One from tuberculosis, apparently independent of syphilis; nine from exhaustion, two of these after tracheotomy; two from pleurisy and bronchitis, not stated as syphilitic; one from peritonitis and anal fistula; and one from erysipelas.

Out of these sixteen cases it is difficult to ascribe the deaths of all to syphilis, although it may have been, possibly was, the indirect cause. One agency, however, is very prominent, and that is exhaustion; and we likewise note that in all these cases of death, the end was accelerated, if not caused, by diseases which are in themselves serious, perhaps actually fatal, entirely apart from any consideration of syphilis.

Turning, now, to the mortuary records of large cities, and selecting those of 1871, in London, New York, and Philadelphia, we obtain the following:

In London, the total number of deaths was 80,434; from syphilis, 352—a little over four-tenths of one per cent. of the whole number.

In New York, the total number of deaths was 26,976; from syphilis, 142—a little over one-half of one per cent. of the whole number.

In Philadelphia, the total number of deaths was 16,993; from syphilis, 19—a little over one-tenth of one per cent. of the whole number.

As it is probable that these figures do not strictly represent all the deaths from syphilis, and to give full allowance for all possible errors in registration, &c., we will double the number of deaths above given due to syphilis—not that it is really believed that amount of error exists, but to give the fullest possible latitude. The figures would then read—

London, 1871;	deaths from syphilis	= .8+	of one per cent. of the total number.
New York,	do.	do.	= 1.+ per cent. of the total number.
Philadelphia,	do.	do.	= .2+ of one per cent. of the total number.

Candidly, is that such a large percentage, even with this increase of one hundred per cent.? Let us see how the deaths compare with those from some of the zymotic diseases, *ex. gr.*, scarlatina, typhoid fever, measles, and small-pox :

Total deaths in London during 1871.....	80, 430
From Scarlatina	1, 902
Typhoid fever.....	871
Measles.....	1, 427
Small-pox.....	7, 912
Syphilis	352
Total deaths in New York during 1871.....	26, 976
From Scarlatina	791
Typhoid fever.....	239
Measles	409
Small-pox and varioloid	805
Syphilis	142
Total deaths in Philadelphia during 1871.....	16, 993
From Scarlatina	262
Typhoid fever.....	313
Measles.....	41
Small-pox.....	1, 879
Syphilis	19

Before passing on to a consideration of the mortality in congenital syphilis, it will be worth while to glance at some statistics which are not open to, at least, one objection—the *mauvaise houte*, which, perhaps, occasions some false returns as to the true cause of death. In the American Army from 1840 to 1859 the total number of cases of syphilis is computed at 21.69; from which there were thirteen deaths, or a little less than six-tenths of one per cent. of the total number of cases. In the British Army for the three years, 1869 to 1871, inclusive, the total number of syphilitic sick was 29,851; among these, thirty-two deaths occurred—a little over one-tenth of one per cent. of the entire number. Even if we include those who died, were invalided, and discharged the service from this cause, it only amounts to 460 men out of a total strength of 388,221.

In face of these figures, would it be fair to consider syphilis a fatal disease? Decidedly not.

But there is one aspect in which syphilis is to be dreaded, and where it is especially mischievous, and that is in the congenital forms of the disease. To revert again to the dry, but necessary, array of figures, we found that in London during 1871 the number of deaths from syphilis was 352; of these, thirty-eight occurred between the ages of five and ninety-five years. In New York, during 1871, the number of deaths from syphilis was 142; of these, twenty-two occurred between the ages of five and ninety-five years. In Philadelphia, during 1871, the number

of deaths from syphilis was nineteen; of these, seven were between the ages of five and ninety-five years.

Of the remainder, in London, 314 infants under five years of age died from syphilis, and, of this number, 281 before the completion of their first year; in New York, 120 infants under five years of age died from the same cause, and, of these, 113 before the completion of their first year; in Philadelphia, twelve infants under five years of age died from syphilis, and, of this number, ten before the completion of their first year.

To present it more concisely: In London, in 1871, the percentage of deaths under five years, to the total of deaths from syphilis, was over eighty-nine. In New York, in 1871, the percentage of deaths under five years, to the total of deaths from syphilis, was over eighty-four. In Philadelphia, in 1871, the percentage of deaths under five years to the total of deaths from syphilis, was over sixty-three.

Large as these figures seem, they are borne out by the statistics of other countries. In the Moscow Hospital, of Russia, for the period between 1860-'70, inclusive, the percentage of deaths among syphilitic children ranged between sixty-three and eighty-two. In Sigmund's wards, in Vienna, out of sixty-one births, all but two are known to have died; of these births, seventeen were premature and forty-four at full term. Of the seventeen premature births, eleven were born dead; of the forty-four at full term, three were born dead; of the forty-seven living children, four lived more than three months, and in two the result is unknown; of the remaining forty-one, the mean duration of life was twenty-six days, the shortest period being one hour, and the longest ninety days.

Before leaving this question of the mortality of syphilis, we may compare the syphilitic deaths of previous years with those of 1871, to see if the number has increased or diminished. Taking England and the United States as a basis of comparison, and dividing the time into periods of ten years, we find that the number of deaths in England from syphilis, between 1841-'51, was 598; between 1851-'61, was 1,177; between 1861-'71, was 1,742. In the United States, between 1840-'50, the number of deaths from syphilis was 146; between 1850-'60, was 233; between 1860-'70, was 590.

In cities the rate of mortality from the same cause has also increased; thus, in New York the number of deaths from syphilis in 1866 was 44, while in 1871 it was 142; and in Philadelphia the numbers stand 22 in 1866 against 9 in 1860, (but for the year 1871 there was a decrease from some cause or other; only nineteen being credited to syphilis.)

This increase is due, perhaps, to improved and more careful registration, and although these figures do not absolutely represent all the deaths from syphilis, they are not much out of the way; moreover, should we decide to reject them totally, as untrustworthy on this account, then must we do so for all mortuary statistics, as they are liable to the same objection. Thus, with regard to scarlatina, the patient may die of nephritis and the death would then be recorded as one from nephritis and not from scarlatina, to which latter disease, however, it properly belongs. Another point: Faulty as figures are, the proverb to the contrary notwithstanding, they are, in the main, a safer guide than vague statements based upon personal belief—certainly than such statements as those in a paper in the *Westminster Review* for July, 1869, in which the most astonishing accounts are given of the ravages produced by syphilis, and the marvellous modes of its transmission to the infant through the mother's milk; this, too, by a writer who is understood to be a medical man.

The effects of syphilis are serious enough without exaggerating them; and such exaggeration as the following—coming, as it does, from a man whose acknowledged rank and position entitle his dicta to respect—cannot be too strongly protested against. Sir William Jenner, the President of the Epidemiological Society of London, in his address delivered at the opening of the session of 1866-'67, makes the following statement *ore rotundo*: "Syphilis, more often than has been commonly believed, means death—death to the primarily syphilized, and death to his offspring." Is this strictly correct?—does syphilis mean "death to the primarily syphilized?" If it does, how can we reconcile the large number of cases coming under treatment with the small number of deaths, small even when the number recorded is doubled.

The danger to the public health from syphilis is not so much to those who acquire the disease as to those who inherit it; and this not only from the relative large mortality among the latter, but from the fact that the inheritors of this disease possess a vitiated vitality and a tendency to degeneration of tissue.

This brings us to the consideration of the third point: Does syphilis favor the development or fatally influence the course of other diseases?

Marowski, in a paper contributed to the *Deutsche Klinik* for 1863, in his summary, says: "It is nevertheless very probable that the children of such (syphilitic) parents receive a certain morbid predisposition; *e. g.*, to scrofulosis, hydrocephalus, phthisis pulmonalis."

The question has often been broached, Is scrofula syphilis?—and

has been variously answered, according to the belief or predilections of the proponent. The writer does not, himself, believe that scrofula can be considered as due to syphilis any more than to tuberculosis, to cancer or to malarial influences. A large number of children, born of parents where one only is seemingly diseased, notably the father, are healthy; this may also be the case where both have been infected; such children, then, have neither inherited syphilis nor any degenerate tendency, so far as syphilis is concerned. Only those show these morbid predispositions who have had evidences of the disease, but no child goes through the early years of life free from symptoms, to suddenly break out at puberty or in adult life with so-called "latent syphilis." Then these cases of scrofula, rickets, &c., said to originate from syphilis, do so no more than do these same diseases when they occur in children the offspring of phthisical persons. *Syphilis can only produce syphilis.* It cannot produce phthisis any more than it can measles. But syphilis does endow the child with a vitiated, enervated frame, and if it happen to survive the first few years of its existence, it is prone to succumb to any extra strain imposed upon it, and is less able to resist attacks of sickness which a healthy child would. This view does not militate against the possibility of the child inheriting a tendency to other diseases besides the syphilitic taint, *e. g.*, phthisis, rheumatism, or gout. This belief, long entertained, is corroborated by others, among whom may be cited Mr. Hutchinson of London, who, in an article to the Medical Times and Gazette, under date of December 14, 1867, writes as follows:

The determination as to what should, and what should not, be assigned to the remote influence of a syphilitic taint is one of very great difficulty; yet I hope to be able to show that there are certain methods of inquiry, by pursuing which a fairly satisfactory conclusion might be arrived at. I am sure you will agree with me that the time for mere speculation and conjecture is passing by. There were those amongst the physicians of more than a century ago who suspected a taint of lues in almost all the chronic maladies of youth, and a living author has, long prior to the authority you quote, asked, "Is not all struma syphilis?" In support of such suggestions, however, few or no facts have been brought. On the other hand, a very considerable body of evidence has been collected, which favors the belief that the results of syphilis, from first to last, are specific and peculiar, and that with due care they may be distinguished from those due to other causes. In infancy, if a syphilitic child has a rash, it is peculiar, and he is not more liable than others to common eczema and the like. So, at the age of puberty, he may have nodes, interstitial keratitis, deafness, phagedenic lupus, or visceral disease, but whatever he has it is still peculiar. No non-syphilitic child would, by any chance, present similar conditions, nor does the syphilitic one display those common to other forms of cachexia. With the utmost deference to the great

authority whose opinion you have quoted, I venture the opinion that syphilitic children will not become either rickety or tuberculous. I use these words in their strict sense; we must not confuse periostitis or general want of development with rickets, nor gummous deposits in glands, or viscera, with tuberculosis. You will observe that I avoid dispute as to "struma." The word "struma" is too indefinite in its meaning to admit of any profitable discussion as to its causes. What one surgeon would call strumous, another would unhesitatingly consider syphilitic, and, without any doubt a considerable array of symptoms which were formerly ranked as struma we may now safely class as specific. The now typically syphilitic physiognomy used formerly to be considered the typically "strumous." I therefore restrict our difference of opinion to rickets and tuberculosis—conditions which are definite and well understood. Of course, I do not assert that inherited taint confers any immunity from other diseases. If a patient be exposed to the influences which produce two different maladies, he may show the two in combination, and thus a syphilitic patient may easily be also rickety and tuberculous. I do, however, express strongly my present conviction that he will not suffer one whit more severely from the latter diseases because he is syphilitic, nor will he have been in the least predisposed to their attacks.

And here the post-mortem table would seem to bear out clinical observation; witness Parrot's and others' cases, where distinctive marks are laid down between the osseous lesions due to inherited syphilis and those due to rickets.

It will not be devoid of interest to glance for a few minutes at the influence which syphilis exercises over the course of the zymotic diseases, more especially over small-pox and scarlatina. The observations and recorded opinions upon this branch of the subject are very meagre indeed, but such as we possess are very instructive. Some belong to the acquired, others to the congenital variety of the disease. Bamberger^(a) and Fronmüller^(b) report cases where the subjects of acquired syphilis were seized with small-pox in the course of their disease. Bamberger's two cases show that the small-pox pustules ran their course *secundum ordinem*, without showing any tendency to phagedæna or ulceration; but that, as soon as the crusts became detached, the pustules, instead of healing up, became transformed into mucous patches, which finally yielded to specific treatment. The course in Fronmüller's one case was not, however, so happy. Here the pustules seated on the face and extremities took on ulcerative action, while on other portions of the body they did not. The pustules upon the arms and legs became actively ulcerated, with a tendency to phagedæna.

These cases are altogether too few to allow of generalization which

^a Oesterreich. Zeitsch. f. Prakt. Heilkunde. 1858.

^b Wurzb. Med. Zeitsch. 1860.

shall be of value; but, if it be permitted to do so, they would go to show that acquired syphilis has very little, if any, effect upon the course of small-pox, certainly no fatal influence.

We find, however, a difference in the cases of scarlatina occurring in *congenital* syphilis. Here the results were fatal, and due, in the opinion of the recorders of the cases, to the syphilitic complication. Dr. Edward Woakes, of Leeton, England, at a meeting of the British Medical Association,^(a) gave the results of five cases of scarlatina, complicated with congenital syphilis, and his deductions are so interesting that they may be given somewhat in detail. He says:

To most physicians it has occurred to meet with cases of scarlet fever assuming from the outset a distinctly malignant character, at a time when the type of the prevailing epidemic has been of a favorable kind. Under these circumstances, the question must have propounded itself with perplexing urgency, What is it in these exceptional instances that constitute their virulence? Why should scarlet fever be dreaded as a scourge of worse than Egyptian terror by the members of one family, while, in the adjoining house, perhaps, it asserts itself as a comparatively mild ailment?

The following suggestion towards the solution of this problem resulted from the observation of four or five epidemics of scarlet fever, and is based upon data supplied by a knowledge of the early medical history of the fathers of the patients. As the result of this historical information in the cases to be briefly detailed, the writer has deduced the conclusion that *their malignity was derived from the circumstance of inherited syphilis*.

CASES I AND II.—About twelve years ago, a gentleman came under my care with a large Hunterian chancre of the glans penis, and, while under treatment, informed me he was shortly about to marry. In spite of all remonstrance, he appears to have carried out his intention very shortly after the primary sore had disappeared, and in less than eight months afterward I was informed that his wife had been confined, in a distant town. It was not long before I was called upon to attend this child for very characteristic symptoms of constitutional syphilis; and frequently afterwards did this condition recur, or accompany and complicate every trifling ailment that befell it. In the course of two years another child was born, prematurely, but by dint of much care survived and gave promise of arriving at maturity. Like his brother, he manifested the characters of inherited syphilis. A girl was born in due course, also prematurely, but only survived its birth some three weeks. One or two abortions followed, but, fortunately, no live birth. In the autumn of 1871, during the prevalence of a not remarkably severe epidemic of scarlet fever, these children, having attained the ages, respectively, of nine and seven years, fell with the disease. The elder one, who was first attacked, rapidly developed symptoms of severe blood poisoning. Stupor with low muttering delirium set in within twenty-four hours of the seizure. Intense rash, a temperature of 105 degrees, followed by severe throat symptoms and putrid discharge from the nose and mouth, presaged a fatal issue, which occurred

^a British Medical Journal. October 5, 1872.

on the sixth day. The second boy then sickened, and, though at first with less intensity, he, too, sank at the close of the first week.

CASE III.—About the same time I prescribed occasionally for the child of a groom, aged a little over two years, the subject of scarlet fever. His father, I knew, had a venereal attack three years previously, but, as I did not attend him, cannot testify to its exact character. This patient progressed favorably for a fortnight, when malignant throat symptoms set in under which he sank at the end of the third week.

CASES IV AND V.—About the period at which the history of the first detailed cases commenced—twelve years since—I treated another patient with primary syphilis. He was apparently well acquainted with the phenomenon, made very light of the recurrence, and ceased his visits long before it was prudent to discontinue treatment. Almost my next introduction to him was in the early part of the present year, when the epidemic of scarlet fever, which had nearly disappeared during the winter, revived, and became more general during the inclement spring months. At this period I was requested to see his daughter, about three years old, who was said to be very ill. I then ascertained that of five children born since his marriage this was the only one now living, an infant having died in convulsions, after thirty-six hours' illness, three days previously. This infant, it should be stated, developed a rash a few hours prior to its death, which the friends supposed might be measles, but which there is little doubt was scarlatinal. I found the only surviving child in a moribund condition; an ill-developed dusky rash of scarlet fever was diffused over the entire body, sloughy tonsils, enlarged submaxillary glands, stupor, tympanitic belly, and a temperature of 106 degrees, left no room for doubt, either on the score of diagnosis or prognosis. This child sank on the sixth day.

It is worth while to note, in passing, that the foregoing were the only fatal cases which came under my observation during the recent epidemic, including a period of nine months.^(a)

From the foregoing mass of evidence the following conclusions may be fairly drawn as answers to the questions proposed at the beginning of this paper:

I.—That syphilis is probably widely spread, and possibly is increasing in extent. This opinion, from the imperfect means at our disposal, must, for the present at least, remain more or less conjecture.

II.—The question of the fatality of syphilis, so far as the acquired form of the disease goes, may be answered in the negative; but its excessive mortality in the congenital variety renders the disease a serious and alarming one. One source of consolation remains, however, *i. e.*, that the disease does not probably extend to the third or fourth generation, usually dying out with the second; nor does it usually transmit any specially vitiated vitality to the descendants of the original sufferer.

III.—To the third proposition, we find much the same character of answer, viz., a comparative harmlessness of acquired, and a marked

^a This experience of Mr. Woakes seems to be corroborated by a recent writer in the *St. Louis Medical Archives*.

fatality of congenital syphilis, through its influence upon the course and development of other diseases.

The danger to the public health lies more in the transmitted than in the acquired disease; and whether this be permanent and dangerous, or only temporary and remediable, must remain for future investigation to show. And in this connection it seems desirable to call attention to the present defective registration of just this kind of cases, and to suggest some more trustworthy method of investigation.

This subject was debated at the International Statistical Congress, held at St. Petersburg, in 1872; and, as a result of which debate, that body, recognizing "the grave importance of the effects caused by syphilis upon the physical and moral health of a population, as well as such influence upon its beauty and reproductive powers," and with a view to correct the defects in the methods of registration employed in Russia and other countries, framed a set of rules intended "to render the statistics of syphilis useful to science and to the wants of medical and sanitary practice." The following is a summary of these rules:

A.—In relation to the form of the disease.

1. To separate rigorously syphilitic infections from other diseases resulting from sexual relations, (chancre, gonorrhœa.)
2. To recognize as syphilitic affections of the genital organs (syphilitic chancre) only those affections which have produced (*engendre*) general infections.
3. To register separately cases of fresh infection and relapses (recurrences) of the disease as the only means of exactly learning the powers of propagation of the malady.

B.—In relation to the means of transmission of Syphilis.

1. The cases of infection from sexual contact, the surest data being obtained from the inspection of prostitutes and soldiers.

The facts collected in medical institutions, where suspected persons are treated, would serve to control the figures collected, and that is why the data furnished by inspection need absolutely to be verified by those of hospitals.

2. The cases of infection in other ways, (A) by lactation from the nurse to the infant, or *vice versa*; (B) by vaccination; (C) by the employment in common of instruments or tools in factories, (those of glass factories, for example;) and (D) by the employment in common of household utensils, linen, &c., in congregate life.
3. The cases by hereditary transmission.

REMARK.—It would be in the highest degree interesting to study the degeneration of populations resulting from syphilis which is transmitted from generation to generation in countries where intellectual cultivation is little developed, or where endemic syphilis begins (*syphiloides*), *e. g.*, in the north of Siberia, in Norway, Dalmatia, in the islands of the Archipelago, in Turkey, &c.

C.—In relation to the degeneration of the population.

1. Cases of abortion and premature deliveries caused by syphilis, (A) in the mother, (B) in the father. Syphilitic degeneration of the placenta to be noted, if possible.
2. Cases of death a few days after birth from want of vitality of the new born, the result of syphilis, (A) in the mother; (B) in the father.

D.—*In relation to the influence of the disease on the nervous system.*

1. Cases of mental aberration.
2. Paralytic affections.
3. Epilepsy and other nervous diseases.

E.—*In relation to its influence on deformity.*

1. Deformity of the face.
2. Deformities of other parts of the body, (the fingers, toes, &c.)

F.—*In relation to fitness for military service*

1. Cases of release from period of service on account of incapacities resulting from syphilis.
2. Cases of exclusion from the service on account of incapacities determined by syphilis.

The collection of the data on syphilis is obligatory in—

1. Hospitals, ambulances, lying-in hospitals, foundling hospitals, asylums for infants and nurses, houses of detention.
2. Among land and sea forces; these corps should be regularly inspected, as they are in Russia.
3. In sanitary bureaux and places of inspection of prostitutes.
4. It would in addition be desirable if medical officers attached to, or inspectors of factories, manufactories, of large collections of men, and if those who inspect great bodies of people, would take means to collect facts bearing on this question.

“The detail in which the statistical data connected with syphilis can be gathered in any country depends upon the proportion of medical men to the mass of the population in that country; but, it is to be regretted that even in countries well off in this respect, central points have not been fixed where these facts can be utilized. This circumstance is so prejudicial to the uniformity of the materials already collected as to render it nearly impossible to work them into a harmonious whole. The national centre, for the collection of these data should be, in our opinion, the medical administrations, (sanitary bureaux,) if they have statistical sections, or central statistical offices. Unhappily, the medical administrations of all countries do not embrace the extended study of syphilis in their operations, but restrict their action to a somewhat defective study of syphilis propagated by prostitution.”(a)

(a) Medical Statistics, with especial reference to Cholera and Syphilis. F. J. Monat, M. D., M. R. C. S. Trans. of the Epidemiological Society of London, Sessions of 1869 to 1873. Vol. III, Part II.

YELLOW FEVER AT PENSACOLA IN 1874.

13 M H

YELLOW FEVER AT PENSACOLA IN 1874.

BY JAMES S. HERRON, M. D.,
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THE yellow-fever epidemic which prevailed here this year, (1874,) appears not to have been of local origin, but to have been, as on all previous occasions, the result of importation. On the 25th of May, quarantine was established, and, on the 27th, the Spanish bark *Virtuoso* arrived from Havana, (Cuba,) and was duly detained. One of the crew was reported ill with yellow fever, and two were said to have died during the passage. May 29, a man was brought in an insensible condition to the marine hospital, and was supposed to have congestion of the brain; but the yellow tinge of the skin aroused suspicion, which was verified by his death from black vomit on the next evening, May 30. After death the body turned quite yellow. This man, who was from a lighter in the Bay, had been, according to the most reliable information that could be obtained, engaged in removing ballast from the *Virtuoso*. He went into the hold and threw it out through the port into the lighter. The thermometer had averaged 78° for the previous five days. No other case occurred in the city, nor followed in the hospital, until August, although the fever continued to prevail at quarantine station, four miles distant across the Bay.

A German bark, the *Laura Maria*, entered port shortly after the *Virtuoso*. She was in a perfectly healthy condition at the time, but subsequently lost the greater part of her crew from yellow fever, having contracted the disease from being placed next to the *Virtuoso* in quarantine.

On the 11th of August three negroes, who had been working at quarantine station, came over at night in a boat to this city, and one of the number, L. Thomas, who was sick at the time, died on the 13th of black vomit, according to the report of the attending physician.

On the 16th the American bark *Elmira Combs*, from Aspinwall, entered port with the majority of her crew suffering from Chagres fever, and was placed between the *Virtuoso* and *Laura Maria*. A lighter which had been employed in removing ballast from them, came directly from the latter, and lay alongside the *Elmira Combs*. She was only detained five days in quarantine, and then permitted to

come to the city, where the greater part of her crew was discharged, who, putting up at Kelley's sailor boarding-house, went on a spree "and were all taken down again that night or the next day." One of the crew was admitted to the hospital on the 22d, with a high fever, supposed to be Chagres, which resisted all efforts to break, and continued until his death, on the 27th. The continuance of the fever, which quinine failed to check, the incessant vomiting during thirty-six hours, and the yellow discoloration which took place at the same time, excited suspicion as to the real nature of the disease.

On the succeeding day, viz., the 28th, a Mrs. Caudle, living near the house in which these men were quartered, was reported by the attending physician as having died of black vomit; and on the 29th the death of a sailor in a vessel at the wharf was reported as resulting from the same disease.

These cases confirmed my suspicion, on which, however, I had already acted in the cases of two comrades of the last-mentioned man. They entered on the 25th, and one recovered, but the other, who had only a slight fever that certainly remitted, but which was not checked by quinia, gradually sank, and died on the 30th. This man said he had had a high fever at the boarding-house for three days previous to his admission to the hospital, and that it had then just gone off. He had had Chagres fever for four months, and his lungs were badly affected.

On the 29th, the day previous to the death of the latter, another of the same crew was brought into the hospital from the same boarding-house. He was in a dying condition—quite yellow, and with hemorrhage from the nose and mouth. Three hours after admission he threw up black vomit, and died the next day, the 30th. This was the second case regularly diagnosed and entered as *febris flava*—the one of the 29th of May being the first.

No other case occurred nor was received in the hospital until the 9th of September, when W. Carr, the man mentioned as having entered on the 25th of August and recovered, was taken ill with unmistakable yellow fever, showing that his first attack was only a return of the old Chagres fever. He recovered; but on the 11th another yellow-fever case was admitted from without, and from that time the disease, which had been in the city, to some extent, since the 13th of August, became a regular epidemic.

The total number of cases in the city, exclusive of the hospital, is set down at 225, with 55 deaths, being a mortality of nearly 25 per cent. Of those admitted to hospital, there were, from the 22d of August to the

10th of December, a total of 51 yellow-fever patients, including 36 merchant sailors, 12 county, 1 city, and 2 private patients. Of these, 10 died. But among the latter, it must be recollected are two cases not known or treated as yellow fever, and only thus classed after death; and four of the others, viz., one county patient and three sailors, were admitted in a dying condition, surviving only from about twenty-four to thirty-six hours, having previously been sick and without medical attendance for from five to seven days.

Of those admitted within the first forty-eight hours there were forty-three, with two deaths—one sailor and one private patient. Both were on heavy sprees when taken, and the lungs of the latter were affected. The former was perfectly sound in that respect, but was admitted to the hospital for scurvy six days previous to the manifestation of the fever; but the case was not a bad one, and, had it not been for the whiskey, might, I think, have resulted favorably. Six days after seizure he died from constant vomiting, as his stomach could not be quieted. He had suppression of urine during the last twelve hours.

The above mortality is not quite 5 per cent. But taking the total number of deaths, ten, and the total number of cases, fifty-one, it gives not quite 20 per cent., against nearly 25 per cent. for the private practice of the city, and, hence, compares very favorably with it, and also with that of the navy yard, which I have not been able to obtain, but where, I know, the mortality was very great.

From the 30th of August to the 9th of October there was no death in hospital, (fifty days.) On the 9th a man admitted on the evening of the 7th, in a semi-comatose state, died. He had been sick five days previous to entering the hospital, and is counted in the four already mentioned as hopelessly ill when admitted. Of the two other cases, which terminated fatally, one entered late on the third and the other on the fourth day after seizure. The clerk who died in hospital on the 12th was taken sick on the evening of the 8th, and received into hospital, at the earnest solicitation of his employer, at midday on the 9th. In consequence of his diseased lungs, and of his having been on a spree for a week, the family physician of the gentleman in whose house he was staying considered his case hopeless, and advised that admission should be obtained for him, if possible, to the hospital. The other private patient recovered. He was a bar-tender, and a regular drinker, but did not go on sprees, and was in other respects sound.

In summing up, the following is the result: Fifty-one cases received; forty-one recoveries, and ten deaths. Of the latter, two received in the beginning of the epidemic were not treated for yellow fever, nor its

presence suspected until within the last thirty-six hours; one entered in the calm stage, after the fever had passed off; the fever continued five days in the other case; four were received in a dying condition, and so reported; two received shortly after the fever had passed off, on the third and fourth days; and two treated from or near the inception of the fever, both hard drinkers, the one consumptive, and the other under treatment for scurvy.

The last deaths from yellow fever occurred on the 1st of December. One was of a man admitted from a vessel on the 27th of November—on the third day of his illness, just after the fever had passed off. The other was admitted moribund, on the evening of the 30th of November. He was brought from a sailors' boarding-house, in which he had been sick for more than a week, and he, and the one mentioned above, both, died on the 1st instant of black vomit. These cases are included in the ten deaths already specified.

I would suggest that, when sailors are kept on board ship or in a boarding-house for forty-eight hours after being taken sick, they be treated in those places, instead of being removed to the hospital, and that all expenses, including burial, in case of death, be borne by the captain, or the keeper of the establishment, as the case may be.

After an experience of three epidemics, viz., those of 1867, 1873, and 1874, I am of the opinion that the mortality of yellow fever need not necessarily, when the patient is seen within the first thirty-six hours, exceed ten per cent. for hospital and five per cent. for civil practice. The peculiarities of this last epidemic were, the strong typhoid tendency, and the inability of the patient to stand medicine of any kind. The bowels were usually constipated, but could be much more readily moved than is generally the case in yellow fever, and when so moved had a tendency to run off, and cause the patient to sink from prostration. Such patients usually died suddenly, without black vomit, and with little discoloration of the skin. When this looseness was checked, after a day or so suppression of urine usually supervened, and death by black vomit ensued. When looseness of bowels came on two or three days after the fever had passed off, the patient generally went into a low typhoid condition, with dry tongue, heavily coated and incrustated, and with the usual symptoms of regular typhoid fever; and upon being treated for that disease, in all my cases, they recovered.

The course adopted was to move the bowels, if at all, on the first day, with an enema of soap, molasses, salt, and warm water. But if the patient was not received until after the first twenty-four hours, the bowels were not interfered with until the sixth or seventh day,

when they were unloaded by the specified enema. Usually some laxative had been taken previous to admission, so that it was seldom necessary to order anything at that time. I always directed the use of a bed-pan up to the eighth or tenth day, in order to prevent the patient from rising or being exposed while sweating. A hot mustard foot-bath was given in the beginning, and by each bed was kept a pan containing broken ice and a pitcher of ice water, so that the patient, if neglected by his attendant, could reach them, night and day. No medicine was given, except in a few cases, in which oil was in the beginning administered. For suppression of urine, turpentine was applied over the region of the kidneys. I have seldom known it fail to act, even in cases that terminated fatally; but it was usually not so efficient when the end was only a few hours off.

On the fourth or fifth day, according to circumstances, nourishment was first given; very cautiously, in teaspoonful doses, every two hours for the first half day, and then every hour for the remainder of the day. If well borne, it was given at the same intervals in tablespoonful doses on the next day. I prefer beef tea made from Liebig's Extract.

I did not, in this epidemic, as a rule, sweat the patient so profusely as ordinarily, on account of the depressing effect and strong typhoid tendency. There was also a tendency in this epidemic for the fever, if not treated well in the beginning, or if the patient acted with indiscretion, to continue until the fifth instead of terminating on the third day, as it should have done, thus lasting 120 instead of 72 hours, and in some cases without appreciable difference, while in others it seemed to rise and fall, and terminated at the end of that time either in death or convalescence. Quinine had no effect on the continuance of the fever in the only case in which it was exhibited, namely, the patient admitted in July as ill with Chagres fever.

Most of the patients on the third or fourth day were covered with an eruption resembling *lichen tropicus*, if not actually that affection, and convalescence was followed by desquamation of the cuticle. Boils were common, and large abscesses sometimes formed. In some, of gross habits, an eruption of small boils broke out on the forehead, and occasionally on other parts of the body. Parotitis, which occurred in some cases, only attacked one of my patients; it was quite extensive, but terminated favorably, without suppuration.

Yellow fever was introduced here by vessels from Cuba, and was propagated and disseminated by a worthless quarantine and the sailor's boarding-houses. At the latter men were kept without medical attendance until it was of little avail, and then sent to hospital at the very time when they should not have been moved.

THE YELLOW-FEVER EPIDEMIC OF 1873.

THE YELLOW-FEVER EPIDEMIC OF 1873.

BY FRANK W. REILLY, M. D.,
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ON the 15th of January, 1874, the following resolution was adopted by the Senate of the United States:

WHEREAS, Yellow fever has again prevailed during the past year as an epidemic of frightful severity in some of the cities and towns of the United States, paralyzing trade and commerce throughout large sections of country by impeding travel and menacing neighboring communities; and

Whereas, Many cities equally exposed with those which suffered most severely escaped with slight mortality, indicating that certain conditions and measures may control or arrest the spread of the epidemic; and

Whereas, The history of the disease tends to show that it is almost uniformly introduced into the United States by seamen already infected with the contagion, or arriving from ports where the disease exists; and

Whereas, The United States Marine-Hospital Service, through its medical officers at the ports where the epidemic prevailed, was enabled to become familiar with the course of the disease, the conditions favorable to its introduction and progress, and the measures which were successful in controlling or checking it; therefore

Resolved, That the Secretary of the Treasury be, and hereby is, directed to instruct the Supervising Surgeon of the Marine-Hospital Service to prepare or cause to be prepared, from the reports and observations of the marine-hospital surgeons, and from other available sources, a brief and succinct history of the yellow-fever epidemic of 1873 as it prevailed at the various ports of the United States, with especial reference to details of prevention and hygiene; and transmit the same to the Senate at the earliest day practicable.^(a)

In accordance with the foregoing, the Supervising Surgeon, on the 31st of March, detailed the writer to prepare the report therein called for, and suggested as subjects which should receive a thorough investigation—

I. The question of quarantine in connection with the following facts and statements concerning said epidemic: That yellow fever found its way by land into New York City from ports at which quarantine was not enforced, but, owing “to the efficiency of its board of health,” the disease was confined to the imported cases, (*vide* Annual Report Super-

^a This paper, which was laid before the Senate, March 12, 1875, and ordered to be printed, is included in the Supervising Surgeon's Report from the importance of the subject to Surgeons of the Service.

vising Surgeon, 1873, pp. 112, 113;) that no new fatal cases occurred among citizens after the establishment of quarantine at Cairo, Ill., (*ibid.*, pp. 108, 109;) that, notwithstanding quarantine regulations at New Orleans, there continued to be "repeated new importations" of the disease during the yellow-fever season, and yet the disease "showed no disposition to spread," (*ibid.*, p. 103;) and that at Pensacola the introduction of the disease—the first case occurring August 2—is attributed to a vessel, the *Golden Dream*, which arrived from Havana June 10, and was quarantined twenty-four days, during which time it is to be presumed she was thoroughly disinfected.

II. The question of sanitation, in view of the substantial immunity of Mobile and New Orleans as compared with Memphis and Shreveport; and in this connection the testimony of the profession concerning the alleged prophylactic value of carbolic acid and other disinfectants.

Falling far short of the possible results foreshadowed in these suggestions, the following report is submitted with the consciousness that at least one element of weakness has been studiously avoided, namely, the search for facts to support, to the ignoring of such as might militate against, any preconceived theory of the disease.

THE LESSON OF THE EPIDEMIC.

To repeat the thrice-told tale of how yellow fever appeared first on such a day in such a locality, and thence, unstayed by any known action of man, spread and rioted throughout a given city, until, either from lack of suitable pabulum or from the advent of cold weather, it gradually died out; merely to rehearse the more or less conflicting statements and opinions concerning its origin, nature, causes, and modes of propagation; and to sum up the totals of cases and the totals of deaths, and the percentages and the averages—to do this might be "to prepare a brief and succinct history of the yellow-fever epidemic of 1873." And if to this were added descriptions of the varying sanitary or insanitary conditions of the towns and cities visited by the disease, and of the "details of prevention and hygiene" adopted or neglected at each—the whole garnished and padded, *more consueto*, with references and extracts from the earliest writers down to those of the present day—the letter, at least, of the Senate resolution would be fully complied with.

It is doubtful, however, whether such perfunctory performance, while it might result in a voluminous and imposing-looking report, would add anything of real value to the stock of human knowledge; for it may as well be admitted at the outset that absolutely nothing has been

learned of the cause of the disease; that the question of its autochthonous origin or its uniform importation into the Gulf States from adjacent countries possessing substantially the same climatic conditions, is still unsettled; that specific modes of prevention and of limitation remain as vague and inept; that medical skill is as baffled, and medical opinion as confused and conflicting, as in the days of Benjamin Rush and his critics. The questions propounded by the Supervising Surgeon in his annual report are yet unanswered: How far carbolic disinfection may be accredited with the jugulation of the threatened epidemic at New Orleans and Mobile; to what extent thorough or defective sanitary measures affect the progress of the disease in the light of the experience of those cities as compared with Memphis and Shreveport; what is proper quarantine for yellow fever at various ports, and what is the true scope, function, and value of quarantine; can a quarantine be effective which does not embrace "commerce with foreign nations and among the several States" by land as well as by water?—to none of these have satisfactory answers been returned.

Volumes, it is true, have been written in the attempt to answer them; but the answers are mainly based on hypotheses, and for every volume sustaining a given theory you shall find two assailing it; for every array of "facts," on the one side, you shall have an equally unsubstantial phalanx set over against it. The disease is a veritable *crux medicorum*; and while, on the one hand, Warren Stone thus sums up the value of experience: Those know most about yellow fever who have seen least of it—an epigram which is both a confession and a satire; on the other, a no less eminent physician thus pronounces upon the utility of book-knowledge: With regard to yellow fever in particular there is no impropriety in reading as much as one pleases, provided he never has to treat a case; but that physician who has acquired his knowledge of this disease from books is more dangerous to his patients than the disease itself. Having witnessed two severe epidemics of the disease prior to 1873, as well as a few cases in the latter year; having waded through a goodly library on the subject; and having listened to the recital of the personal experience and opinions of several score observers, the reporter is prepared to admit the substantial truth of both dicta and to be thereby reconciled to the brevity and the barrenness of his own contribution.

And yet this jejune and negative result may after all possess some value; for, though as to the story of the disease in general and of this epidemic in particular, he might say, with Canning's needy knife-grinder, that he had none to tell, there may be some good gained even

through these negations; a good of wider application and more valuable than the discovery of any mode of prevention or of cure limited to this individual disease alone; of wider application and of greater value, inasmuch as it pertains to the prevention of all disease and to the protection of the health of the whole people. To illustrate: The year 1873 was characterized in the United States by the conjoint occurrence of two diseases which are invested—by tradition, by a certain mystery which surrounds them, by the futility of medical skill in their presence—with an importance beyond any other diseases which, in modern times, afflict mankind. Their advent is the signal for profound and widespread alarm; during their reign intercourse is suspended, commerce and industry stand paralyzed, grass grows in the market-places, and the public revenues shrink and dwindle. And yet the result of the simultaneous prevalence of yellow fever and cholera in the United States during the year 1873 was an aggregate of less than 8,000 deaths in a total mortality from all causes of over half a million.

From the date of the first case, May 23, to the date of the last case, December 29, 1873, there occurred 3,397 deaths from specific or epidemic yellow fever. During the same period each year there occur from the group of malarial fevers an aggregate of 9,200 deaths.

From the 9th day of February, 1873, until the 16th of October of the same year, the dates of the first and last cases of the disease, there occurred 3,825 deaths from malignant or epidemic cholera. During the same period each year there occur, in round numbers, 20,000 deaths from diarrhœa, dysentery, and cholera infantum.

The last preceding epidemic appearance of yellow fever was in 1867, and from its subsidence up to the close of 1872 there had been an aggregate of 970 deaths from this cause; but during the same period there had been an aggregate of over 50,000 deaths from the malarial fevers.

There had been no epidemic cholera in the country for the six years previous; but during that period the group of diseases most resembling it had carried off not less than 125,000 persons.

And, year by year, such more or less preventable diseases as small-pox, scarlet fever, typhus, enteric fever, and consumption, are the causes of a tolerably constant average of over one hundred thousand deaths per annum.^(a)

It is not intended to urge from this that the comparative indifference to the causes of this greater and constant mortality, or the interest,

^a These figures, except for yellow fever and cholera, are based upon the special tables of mortality in the Vital Statistics of the IXth Census. They do not pretend to absolute accuracy, in fact are known to be under-statements, but are sufficiently correct for the illustration, and their source is readily accessible.

the concern, the unreasoning fear, with which a rare access of cholera or an occasional visitation of yellow fever are always regarded, are in the one case misplaced, or in the other groundless and inexplicable—certainly not the latter, for it is the unusual which arouses attention, the mysterious which excites awe, the unknown before which reason abdicates. And precisely because the occurrence of these diseases is unusual; because their origin, nature, and progress are still largely veiled in mystery; because some of the most important laws which govern them are yet unknown—it is through these attributes that they inspire terror, throw communities into panic, give birth to commissions and conferences, reports and investigations, quarantine laws and interdicts, and unnumbered other fruitless, and not always harmless, offspring.

But such a comparison serves to point and mordicate the only lesson taught by the history of the late epidemic of yellow fever, viz: That, in the present state of human knowledge, to the same agencies only can we look for the prevention and control of this disease that we know are efficient, to a greater or lesser extent, in the control and limitation of the causes of that other immensely greater and uniform loss of life above shown. Such agencies are summed up in two words: *General Sanitation*—in which are included thorough cleanliness, pure air, unpolluted water, wholesome food, and individual hygiene.

What these agencies have done to “stamp out,” by making impossible, the plagues and pestilences of a few years ago, they can do in large measure to avoid the very conditions necessary to the existence and spread of yellow fever. *Obsta principiis*, as a rule of action with this disease, is demonstrably impracticable, at least on our Gulf coast. There the beginnings cannot be resisted short of such a total isolation of the ports as the vigilance and authority of the Army and Navy combined have hitherto failed to effect. No partial exclusion will suffice to prevent an explosion when the mine is ready, as it was in Memphis and in Shreveport, for months before the spark was applied. And no multiplication of the spark will create an explosion where the explosive elements are absent, as was abundantly proven at Mobile and at New Orleans.

No quarantine however rigid, no disinfection yet devised, no restriction at all compatible with commercial intercourse, can prevent the introduction of yellow-fever germs along the line of coast between Key West and Brownsville in a thousand unsuspected modes. Once introduced, no matter how, whether by petty smuggler or formally-cleared threemaster; by a United States mail steamer landing on a

New Orleans levee in the month of January the effects of a yellow-fever victim who died in Havana in the previous November; or a twenty-ton fruit boat stealing up a bayou to put ashore a deserting sailor, sole survivor of some fever-stricken ship which the next norther will send to the bottom to lay her bones beside the *Golden Dream*—once introduced into a community living under the tropicoid sun of a southern summer, with defective sewerage, imperfect scavenging, polluted water supply, neglected cloacæ, and, *invidia absit*, with the lowered moral as well as physical tone these conditions inevitably produce, an epidemic of yellow fever is no more to be wondered at than is any other natural result the effect of a sufficient cause.

Nor is it clear that in the end the ravages of a given epidemic disease materially swell the average death-rate of such a community; for if not by yellow fever, then by small-pox or diphtheria, by enteric or relapsing or cerebro-spinal fevers will the mortality rate be kept up, as it unmistakably is, in the absence of these, by the minor diseases, whose increased prevalence and gravity are due to the same insanitary conditions which are among the essential factors of an epidemic.

What is clear then, and what remains to profit from, as the lesson of the epidemic of 1873—emphasized by its manifold horrors, by its interruption to commerce and industry, by its individual sufferings and losses, by its widows and orphans and desolated homes—is, that it is not sufficient to guard and purge the outside of the vessel while leaving it full of all manner of corruption and uncleanness within; that to physical not less than to moral health a city's foes are those of her own households; that not what goes into the city is harmful so much as that which is begotten and bred within the city itself.

And if this lesson be laid to heart, and through it sanitary effort—the modern “cheap defence of nations”—be stimulated; if boards of health be thence endowed with ampler powers and held to a more rigid accountability; if the individual, and the community, and the State, and the Nation shall learn that there is no vicarious atonement for sin against hygiene, no salvation, either through quarantine alone or disinfection alone or special prophylaxis alone, so sufficient but that the wages of such sin shall surely find the sinner out, if not in the stern, swift, and often merciful stroke of an epidemic, then in the frequent or prolonged suffering from other disease; and, beyond all and above all, if the public press—the later Hercules, already laboring more marvellously than its Augean prototype in sanitary interests—shall take the lesson and point its moral until all the people know that not only

individual but civic cleanliness is next to godliness, that for practical purposes, at least, disease is a unit, that the greater includes the lesser; and so, in the progress of preventive medicine and the resources of sanitary science, not alone yellow fever, but all disease shall be disarmed, health preserved, and life prolonged, then the failure to determine the specific *materia morbosa* of this or that disease will be at least not an unmixed evil.

HISTORY OF THE EPIDEMIC.

In the following brief history of the epidemic the disease is followed step by step from its first appearance in the United States until its close, preserving the chronological rather than the geographical order for the purpose of showing, if possible, the modes in which the disease was introduced, or first manifested itself in localities where it subsequently spread. Localities where only an occasional case appeared—as of refugees, sailors, &c.—will be found mentioned in connection with the nearest epidemic centre. To this, however, the port of New York may be made an exception, because, although the disease was repeatedly introduced both in the harbor and the city, it fortunately gained no foothold. This port may, therefore, be mentioned separately and disposed of at the outset. There were here in all sixty-nine cases, of which sixty-two were removed from vessels arriving at quarantine, the first on May 23. The last case—that of a refugee from Memphis, who died in ambulance on his way to hospital October 30—was among the remaining number which complete the total of sixty-nine cases, of which eighteen died. Of this latter group of seven cases, one arrived, by the steamer *Yazoo* from New Orleans, at Philadelphia May 29; sickness had appeared on the ship May 27; the vessel was not quarantined; the patient, a waiter on the steamer, went to New York, arrived May 31, sick on his arrival; was taken to No. 7 Eldridge street, and died June 2. Three cases, of which two died, arrived on a schooner from New Orleans, and were treated by the Marine-Hospital Service, as was also the last of this group of cases, the engineer of the steamer *Metropolis*, who had been sick in New Orleans, disease not determined; arrived at New York September 22, entered hospital same day, and died on the 27th, of undoubted yellow fever, probably a relapse of the disease from which he suffered in New Orleans. Concerning the cases which reached New York despite the thorough and enlightened sanitary administration of the port, Surgeon Heber Smith, of the Marine-Hospital Service, remarks “that, so long as quarantine is a matter controlled by State caprice or fear, there is

nothing to prevent the introduction of this or any other disease into a community, no matter how rigid or perfect the quarantine of such community may be made—and its present administration at New York is both. That yellow fever failed to become epidemic in New York the past season, that it is not epidemic every season, is due probably, first, to the want of favoring conditions in the season itself, and, second, to the efficiency of its board of health; but certainly not to the want of a supply of fomites furnished by land from other ports.”

New Orleans: July 4—November 18.

The first case of yellow fever as an epidemic in 1873, occurred on the 4th of July, in the city of New Orleans; but whether from indigenous causes, or from germs surviving from the previous season, or from germs freshly imported from Cuba, is a matter of doubt. As curiously illustrating the difficulties which attend an *ex post facto* investigation into the origin and progress of an epidemic disease, it may be worth while to collate the various official statements concerning this case. José Maria Arua, mate of the Spanish bark *Valparaiso*, then lying at Pier No. 48, in the Fourth District, two miles above the business centre of the city, was taken sick on the 4th day of July, and, after being treated two days on the ship, was carried down to the Third District, a distance of three miles, where he died two days after. The accounts agree that this vessel left Havana in ballast, with a clean bill of health; that she arrived on the 24th of June at the Mississippi Quarantine Station, seventy-five miles (or from sixteen to twenty hours in point of time) below New Orleans, and that the mate fell sick and died as above related. But here all harmony of statement ends.

Dr. C. B. White, President of the Board of Health, in his Annual Report to the General Assembly of Louisiana, 1873, (session of 1874,) page 18, says: “The *Valparaiso* appeared at the Mississippi Quarantine Station June 24th, eight days from Havana. On the 26th, [a] no cases of yellow fever having occurred on board since leaving port, she was allowed to come to the city.”

The Secretary to the Board of Health, in his official report to its President, loc. cit., p. 47, says: “This bark [the *Valparaiso*] left Havana June 15th, [b] in ballast, and arrived at Quarantine Station on the Mississippi river, June 24th, and was detained there two days, [c] after which she was released and permitted to come to the city, arriving June 26th.” [a’]

Surgeon Orsamus Smith, M.-H. S., in the Report of the Supervising Surgeon U. S. Marine-Hospital Service for 1873, p. 102, says: “I have the honor to state that the first ascertained cases of yellow fever

reported in the city were from the Spanish bark *Valparaiso* which arrived here from Havana in ballast, with five passengers, June 26, 1873, [*a''*,] having been detained at quarantine four or five days, [*d*; cf. *a* and *c*.]

Dr. Jerome Cochran, Professor of Public Hygiene, &c., Medical College of Alabama, in the Transactions of the Alabama State Medical Society, for 1873, p. 114, says: "The *Valparaiso* left Havana on the 15th of June, [*b'*,] in ballast, with twenty-one souls on board, all in good health. She arrived at the Mississippi Quarantine Station, below New Orleans, on the 24th of June, and was detained there for three full days, [*e*; cf. *a*, *c*, and *d*.] * * * * She arrived on the 26th or 27th of June, [*f*; cf. *a*, *a'*, *a''*,] and was docked at pier 48," &c.

Dr. S. C. Russell, in a paper entitled *Some account of yellow fever as it appeared in New Orleans in 1873*, published in the first volume of Public Health Reports and Papers of the American Public Health Association, 1874, p. 430, says: "This bark left Havana June 16th [*g*; cf. *b*, *b'*] of the present year, in ballast, and arrived at the Quarantine Station, on the Mississippi River, June 24, and was detained there three days, [*e'*; cf. *a*, *c*, and *d*,] after which she was released and permitted to come to the city, arriving June 26, [*a'''*.]" He also furnishes—in the same paper, p. 430—a letter from Dr. George Howe, Resident Physician at the Quarantine Station, under date of October 12, 1873, in which Dr. Howe says: "The bark *Valparaiso*, 'Spanish flag,' left Havana on the morning of June 16, 1873, [*g'*; cf. *b*, *b'*, and *g*,] for New Orleans with nineteen crew and five sailors, who worked their passage here. Arrived at Quarantine Station June 24, P. M. All well. Notified the captain, Rosas, that two-and-a-half days' quarantine were required to complete the ten days required by law. She did not get off until seventy-two hours after arrival, [*e''*; cf. *a*, *c*, and *d*,] the tow-boat being detained below."

In an appended statement to Dr. Russell's paper, loc. cit., p. 434, Dr. A. W. Perry, Sanitary Inspector to the Board of Health, says the *Valparaiso* "left Havana in ballast June 16, [*g''*; cf. *b*, *b'*, *g*, and *g'*,] and arrived at the Quarantine Station below the city June 24. After a detention of two days [*c'*; cf. *a*, *c*, *d*, and *d'*] the vessel arrived in the city and was moored at Post No. 48, at the foot of Second street."

These various statements are given in the order of their public appearance, and it is only necessary to add, in proof of the assertion that nothing concerning the origin of the disease has been settled by the history of this epidemic, the following extract from the report already quoted: ^(a)

^a Annual Report of the Board of Health to the General Assembly of Louisiana, 1873, p. 54.

It is reported that four deaths from yellow fever occurred on the *Ada Oulton* when off the Tortugas, July 18 and 20. The *Ada Oulton* left New Orleans the day Arua died, July 8. She lay at or near the same pier as did the *Valparaíso*. If so, did the *Ada Oulton* get her fever from the *Valparaíso*, or did the germs under or about the wharves affect both ships alike? Might it not have found a suitable nidus under the wharf, where, under favorable circumstances, it manifested itself on nearly every ship or boat of that locality? The weather was at that time extremely warm and favorable to the propagation of the disease. It may be mentioned here that the fever broke out last season four squares from where the *Valparaíso* lay this year, and then there was not the slightest evidence of importation; in fact, the first case of 1872 was positively known to have been sporadic, yet there were thirty-nine deaths following it during the season.

It may also be "mentioned" that in 1871 the disease occurred in, and was almost wholly confined to, the same locality; and that there is not only no evidence of the importation of the disease during that year, but the facts connected with the outbreak of the local epidemic of 1871 indicate a very plausible explanation of the origin of the epidemic of 1873. In the former year a homeless vagabond—"without occupation, sleeping about the elevator wharf and drinking all the liquor he could pay for or get upon credit" for a month or so previous to his attack—was received into the Charity Hospital on the 4th of August, where he died the same night of yellow fever with black vomit. For some four nights previous he had been sleeping about the bark *Mary Pratt*, from Cienfuegos, which was discharging sugar into the elevator warehouse. She had brought a clean bill of health to the Quarantine Station, and having no sickness on board on her arrival, was allowed to come up to the city. After her hatches were opened and she had commenced discharging cargo, this man, Collinberg, slept on board and was taken sick. The vessel was then sent to the quarantine ground to be disinfected, at the discretion of the resident physician. August 10 she was released from quarantine, and returning to the city was laid to the wharf at the foot of Terpsichore street on the 13th. On the 23d, George M. Moussé was employed as her steward, and began work on board, cleaning up the cabin, which was reported to be in a very filthy state; was taken sick with yellow fever on the 29th, removed to the Hotel Dieu on September 4th, and died on September 5th. On the day of his death, a tailor working and residing on Tchoupitoulas street, between Robin and Race—the first and second streets above that at the foot of which lay the *Mary Pratt*—was taken ill and died of the fever, and this vicinity soon became the centre of an infected locality.

The point here sought to be made is, that, notwithstanding quaran-

tine precautions, a vessel arriving during the hot weather from a West Indian or tropical port, although apparently entirely free from disease, and though subjected to the usual processes of disinfection, may, under the semi-tropical sun of a New Orleans summer, develop, from the contents of her hold, as malignant a type of yellow fever as she would have done in the harbors of Vera Cruz or Havana; and that, as yet, the problem of dealing with such sources of yellow-fever importation is not solved.

The next pronounced case of the disease in 1873 occurred on the steamer *Belle Lee*, which lay about one hundred feet from the *Valparaiso*; and this steamer, being ordered from her wharf by the sanitary authorities, was taken to the lower portion of the Sixth District, where she established a new focus of infection, from which resulted thirty-seven cases and twenty-five deaths. During July there were eight cases of the disease, including the ^{*}two first mentioned, of which five died. Vessels berthed in the vicinity of the *Valparaiso* during the months of August, September, and October, became infected, and, on being removed, established new foci for the spread of the disease. During August there were forty cases, with twenty-nine deaths; during September, one hundred and eighty-three cases, with one hundred and eight deaths; during October, one hundred and thirty-five cases, with seventy deaths; and during November, twenty-two cases, with fourteen deaths; making a total of three hundred and eighty-eight cases and two hundred and twenty-six deaths—a mortality of over fifty-eight per cent.

Dating from the labors of the Sanitary Commission of 1854, there has been a steady improvement in the sanitary condition of New Orleans. For nearly half a century previous, the mortality rate had been nearly six per cent. per annum. The death rate of the city during the year 1873 was 3.7 per cent.; certainly not a very high ratio of mortality in the presence of three such diseases as cholera, small-pox, and yellow fever. The region in the rear of the city, between it and Lake Pontchartrain, has been drained and cultivated, and the suburbs generally are in better condition. During the military occupation of the city—1862-'65—it is asserted that it enjoyed so efficient a sanitary police and sanitary regulations that so clean a city had never before been seen upon the continent, and efforts have not been wanting since to hold the advantage then gained.

To such causes and efforts, and to the vigilance of its Board of Health, the citizens of New Orleans may fairly attribute their escape from a widespread prevalence of the disease which, in its type, as

shown by the percentage of mortality and its ravages in the cities of Shreveport and Memphis, was much more malignant than usual. Hampered by financial embarrassments, by inadequate legal authority, and by political emergencies which deprived them of a large part of their working force; and threatened during the year by "the three most universally dreaded and fatal diseases which afflict mankind, small-pox, cholera, and yellow fever," Dr. White and his assistants, with an energy and persistence nothing less than heroic under the circumstances, spared no effort, with the means at their command, to place the city in the best condition to meet the attacks. Upon their specific measures of dealing with yellow fever, no verdict can yet be pronounced. It is believed that never before had disinfection on so extensive a scale been resorted to as by this Board during the summer of 1873. It was begun during the first week in August by the use of crude carbolic acid, which was sprinkled by hand-sprinkling pots to the extent of about twenty gallons to every hundred square yards, and this was repeated several times at intervals of from five to ten days. Concerning the value of this disinfection, Sanitary Inspector A. W. Perry, in a communication to the New Orleans Medical and Surgical Journal for November, says: "To ascertain whether or not the small number of subsequent cases [in infected districts] was because of the small number of persons liable to yellow fever who lived in these squares, a census was taken of the total population of each square, and also of the white persons who had come to the city since 1867, the last epidemic year. In thirty squares, in which most of the yellow-fever cases occurred, the total population was 5,223, an average of one hundred and seventy-four per square; of these, 1,249 were liable to take yellow fever, being nearly twenty-four per cent. liable. Of the liable persons, 7.3 per cent. took the disease before disinfection, and .9 of one per cent. after disinfection." As an isolated fact, this is, as the Supervising Surgeon remarks, certainly very striking; but isolated facts are not conclusive, and this question is still open for investigation.^(a)

Pensacola: August 2—November 19.

No connection can be proved between the outbreaks of the disease in New Orleans and in Pensacola, where, in the early part of August, it next made its appearance. So much of the following as relates to the narrative of the epidemic of 1873, was personally verified by the reporter in the spring of 1874, during his visit to Pensacola; and the

^a Annual Report Supervising Surgeon United States Marine-Hospital Service, 1873, p. 103.

entire paper, which was prepared at the reporter's request, by Dr. James S. Herron, surgeon in charge of marine-hospital patients at Pensacola, is herewith presented as a most valuable contribution to the literature of yellow fever:

On the 10th of June, 1873, the British merchant-ship *Golden Dream* arrived at the port of Pensacola, from Havana, and was placed in quarantine. This vessel had lost eleven men while in the port of Havana, three *in transitu* from thence hither, and her entire crew are said to have been shipped from a yellow-fever hospital. She had several convalescing cases on board when she arrived here; but no case is reported as occurring while she remained in quarantine, which was until 3d of July, a period of twenty-three days. When released she came to Commandancia-street wharf and discharged some coal; and it is also stated that some of her remaining ballast was deposited at the shore end of this wharf. She afterwards dropped down for about half a mile below the city, and lay from five to six hundred yards off the shore, at the end of the Perdido Railroad wharf. At this point she was loaded and from thence went to sea on the 16th of August and was lost on the 30th of the same month. The first reported case of yellow fever in the city was that of Mrs. Pfeiffer, who died of black vomit on the 14th of August, and whose case was that evening reported to the mayor by the attending physician. Mrs. Pfeiffer's residence was about three hundred feet distant from the foot of the wharf at which the *Golden Dream* had landed her coal and left a part of her ballast. In a house two blocks northeast of the one occupied by Mrs. P., had died, on the 12th of August, a Mrs. Nasite, after an illness of seven days. This case was reported as "*pernicious fever*." Mrs N. had removed from New Orleans to Pensacola on the 22d of July, and she and Mrs. Pfeiffer are said to have visited. Before either of the above cases, viz., on the 5th of August, a sailor died on the *Golden Dream*. He was from the revenue-cutter *Petrel*; had been on board the former vessel eight days, and was taken sick on the 2d of August. At the request of the captain, an inquest was held on board, and, after an examination by the attending physician, a verdict of "death from intemperance and exposure" was rendered; but some of the crew subsequently stated that the man had thrown up black vomit.

On the 18th of August the second acknowledged case occurred, in the person of the Rev. Mr. Lundy, who resided on the hill in the extreme northeastern portion of the city. On the day mentioned, he died of black vomit, and probably contracted the disease in the course of his missionary labors among the seamen in the lower part of the city. On

the 18th of the same month I was called in by Dr. F. N. Blount, to see a suspicious case at the marine hospital. This man, Oxel Anderson, had entered the hospital on the 14th. I found him with constant hic-cough, which, Dr. Blount informed me, he had had for the three days previous, and, though naturally of fair complexion, his whole person was yellow. These symptoms were accompanied by a quite frequent spit-ting, or rather ejection, of blood from the mouth. I pronounced this a case of yellow fever, and recommended that the cot, together with its occupant, should immediately be removed to a separate ward, and a certain course of treatment adopted. This advice was promptly acted upon, and resulted in the subjugation of the hemorrhage and hiccough and the recovery of the patient. This man was the first case treated at the marine hospital; though three days after the admittance of Oxel, another Anderson had entered the building, viz., on the afternoon of the 17th, and had died during the following night. I did not see him, as the coffin had been closed before I entered the hospital on the 18th. From this date until the night of the 27th there were from one to three cases a day in the city and vicinity. On that night a fire occurred on the northeast corner of Palafox street, opposite the custom-house, by which several stores were destroyed. The majority of citizens were drawn at midnight from their homes by this exciting event, and, as was generally predicted, the spread of the disease was from that period rapid and extensive.

On the 17th of August the first case occurred in Montgomery, Ala., in the persons of Mr. D. H. Cram and Mollie Jackson, parties recently from this city, the former having left here on the 14th and the latter on the 9th of that month. Mr. Cram's office was within a few yards of Mrs. Pfeiffer's residence, and he left for Montgomery just after her death. The house in which Mollie Jackson had lived was in the same block as the one in which the two Andersons had boarded, and her place was frequented by such characters. She, however, left the city five days before the death of the first reported case of fever, but not, as is now believed, before its existence. It is evident from the above that Mollie Jackson did not contract the disease from the marine hospital, as would be inferred from Dr. R. F. Michel's pamphlet on "Epidemic yellow fever in Montgomery, Ala., during the summer of 1873;" but on the contrary, that after her departure it was introduced from the city into the hospital by her associates. From the 14th until the end of the month there was a rush from the city into the country and to the vil-lages along the line of the railroad up to the Junction, distant forty-four miles. At the latter place the first case was the wife of the

conductor of the passenger train, a lady who left town on the first alarm. From this source the disease spread at the Junction rapidly, as those who nursed or visited her were next attacked.

A. M. Hilliard, who was in the city on the 31st of August, was taken with the fever on the 9th of September, at Bluff Springs, thirty-nine miles distant, and also on the line of the railroad, as in the case at the Junction. The attendants and the other occupants of the house, with two exceptions, were the next sufferers. By them it was communicated to others, and thus spread. On the 22d of September, a young gentleman, who had been an almost daily visitor to the city, was taken ill at Oakfield, six miles off on the line of the railroad. Of the six other cases which afterward occurred there, four had not been in the city.

At the post hospital, Fort Barrancas, yellow fever first made its appearance on the 23d September, and the surgeon in charge, Dr. Sternberg, U. S. Army, in a letter to me, attributes its introduction to a barrel of potatoes brought over by the steamer *Amite* from New Orleans, and landed and taken to the hospital August 15, and there opened and spread on the floor of the storeroom. It is possible, however, that one of the first cases, a man named King, who had been on a drunken spree in the adjacent village of Warrington, may have come to Pensacola, or else been in the huts of negroes from here, and thus contracted and introduced the disease. From this time there were sporadic cases in the country and on the bay. The patients were persons who had visited the city, or received articles from it, or held some communication with it.

The first yellow-fever death was reported in Pensacola on the 14th of August, and the last on the 19th of November. The list numbers sixty-one; but it is highly probable that eight or nine other deaths, imputed to various causes, including those of the seamen on the *Golden Dream*, August 5, and Mrs. Nasite, August 14, were due to yellow fever.

In Montgomery, Ala., the first cases were reported on the 17th of August; the first death on the 27th of that month, and the last on the 10th of November. The total number of yellow-fever deaths, given in the Board of Health report, is eighty; but Dr. Michel thinks there were at least one hundred deaths, and gives the names of twenty-two others who were, he considers, its victims, and he estimates the total number of cases at five hundred. At the Junction there are said to have been twenty-two cases, almost the whole settlement, and the mortality was fourteen.

At Bluff Springs, a place of about two hundred inhabitants, there were nine deaths; and at Oakfield, of seven cases, six had professional

aid and recovered. The one that proved fatal had no medical attendance.

The above is a mere outline of the epidemic as it occurred here. It may now be interesting to consider other facts connected therewith.

Immediately on the breaking out of the fever in Pensacola, a rigid quarantine was established, by the military and naval authorities, of Fort Barrancas, the navy yard, and the villages of Warrington and Woolsey. A similar one was also maintained by the civil authorities of Millview, a village eight miles distant, built at the terminus of the Perdido railroad. With the exception of Barrancas, where the fever manifested itself on the 23d of September, all of the above-mentioned places escaped. The troops of Barrancas were, with the exception of about a dozen, instantly removed to Fort Pickens, on Santa Rosa Island, and not a case occurred among them. This corroborates the testimony of the medical officer at the navy yard during the epidemic of 1867, in which he says: "While the fever was raging at the navy yard and in the vicinity, the troops were removed from Barrancas to Pickens, the latter in full view, and only a mile distant; but, the men being completely isolated, not a case occurred there."

In this connection it will be well to mention some facts which appear to prove the infectious and portable nature of the disease, and that it can be communicated or introduced by clothing. On the 15th of November I was called in to see a young lady suffering from a violent attack of yellow fever. She had come in from the country about a week previous to that date, and two quite heavy frosts had occurred seven or eight days before she came to town. After reaching here she had assisted at the opening of a trunk containing the clothing of a man who had died of a very malignant attack of fever at an early period of the epidemic. Hers was the last death; it occurred during cold weather, on the 19th of November. A similar case has been related to me by Mrs. C. L. Le Baron, of this city, concerning the epidemic of 1822. Her father, Mr. Fitzsimmons, of Claiborne, Ala., hearing of the death of his brother at Pensacola, came here by private conveyance—at that time the only mode of transportation—and proceeded to administer on his estate. Among the effects was a trunk of clothes, said not to have been worn; but upon opening it, some articles the deceased had had on when the fatal illness seized him were found in it, and, although two heavy frosts had occurred before Mr. Fitzsimmons's arrival, he contracted the fever, and died, after an illness of four days; and from him the disease broke out afresh. A still more remarkable instance of the length of time the disease may

lie dormant, is one which was given me by the late Dr. John I. Hulse. A Mr. Lane was taken sick of yellow fever in September, 1853, at Dr. Fisher's, in Milton, Florida, thirty miles above Pensacola. His clothes were packed in a trunk, which was locked up and stored in a warehouse, where it was covered with old sails and sacks. Two years later, in the summer of 1855, it was removed from Milton to Brooklin, Alabama, distant forty or forty-five miles north, and was opened in a house there, in the presence of several persons. Soon after, five or six of the inmates of this house sickened, and some of them died of black vomit. I told this to Dr. Harvey Brown, U. S. A., as vouched for by Dr. Hulse, and he has mentioned it in his work on quarantine. For further evidence as to the infectious nature of clothing, bedding, &c., used by yellow-fever cases, see report of Surgeon J. F. Hammond, U. S. A., to the Surgeon General, in 1854, on the yellow fever at Barrancas, in the summer of 1853, and the circumstance of the mattress thrown overboard from the United States steamer *Vixen*, and picked up and used by a negro man, who shortly afterward died of black vomit, and the subsequent spreading of the disease from the negro quarters in which this took place.—(Medical Statistics United States Army, 1839 to 1855.)

I refer to the above-mentioned facts in consequence of their having been demonstrated in this vicinage. From the first yellow-fever epidemic at this place to that of 1873, we have, on each occasion, direct evidence of its introduction by an infected ship.

From the time the United States obtained possession of Florida to the present date, yellow fever appears five times to have assumed an epidemic form in this port, and, during that period, it has also several times been brought here, but failed to spread. I shall first enumerate the former cases. In 1822 it was imported by a schooner, sailing from the north to Cuba and from there to Pensacola, with a cargo of spoiled codfish, which was discharged at the wharf, hauled through the town, and thrown out on a common. The first case and victim was Madam Del Barco, who lived just opposite.

In 1853 it was introduced by the United States steamer *Vixen*, (see Dr. Hammond's report, referred to above;) in 1863, by United States storeship *Relief*, (see account by Surgeon B. F. Gibbs, U. S. N., in the American Journal of Medical Sciences for 1866;) in 1867, by the ship *Fair Wind* and the schooner *Texana*, the former from Jamaica and the latter from New Orleans; and, finally, in 1873, by the British ship *Golden Dream*, from Havana. I was in the last two epidemics as a practitioner, and in the one at the navy yard, in 1853, as a boy. With

regard to the instances when it was introduced here, but did not become pandemic, the most marked appears to be that of the French steam-frigate *Gomer*, in the summer of 1843. Surgeon S. P. Moore, U. S. A., writing from Fort Brown, Texas, in 1853, to the Surgeon General, says, page 356, Medical Statistics United States Army:

The question of contagion is a very important one, and has occupied the attention of physicians and philanthropists for a long period, without definitely settling it. There can be no hesitation in giving a decided opinion that it is not. The disease is of domestic origin. The arguments for contagion are opposed by facts. These are well known, and need not be stated. I may mention one instance: In 1842 or 1843, while stationed at Barrancas, Florida, the French steam-frigate *Gomer* arrived in the harbor of Pensacola, from a West India cruise, with the yellow fever on board. Permission was granted to the surgeon of the ship to occupy one end of the naval hospital. All the sick and convalescent were transferred to the hospital, and the other cases as they occurred on shipboard. The disease went through the ship's crew, yet not a single case appeared on land, although the hospital contained many patients from the home squadron. Our troops were encamped within 100 yards of these sick, and the inhabitants of the Barrancas living within striking distance. No effort was made to establish a system of quarantine with the sick or the ship. Frequent communication took place between the sailors and the landmen.

I have given this extract because it relates to this port, and also in order to correct some errors which, from the lapse of time, Dr. Moore has fallen into. In the first place, he is undecided as to date. The *Gomer* was here, with the fever on board, in 1843. And, secondly, he states that the sick from that frigate were put in one end of the naval hospital. Evidence here shows that they were lodged in a building on the same grounds as the naval hospital, but 150 feet northwest of it, and were attended solely by their own physician from the frigate. They were landed by the boats of the *Gomer* at the hospital wharf, and taken up the road on the east side of the hospital grounds, and in at the north gate, directly to the quarters assigned them. At that time, moreover, a dense woods of over half a mile in length separated the hospital from the navy yard, and a similar grove, a quarter of a mile in length, intervened between the above-mentioned road and the Barrancas. The army commandant's quarters, which were about 150 yards from the *Gomer's* yellow-fever hospital, was the nearest place to it. The encampment is laid down as being where the present barracks flag-staff stands, which placed the troops nearly three hundred yards off; besides, the hospital was surrounded by a fence ten or twelve feet in height, and no one was permitted to enter or leave the enclosure except on business. Even until 1850 the woods and undergrowth were so dense that a person standing by the hospital wall on the west

side, next the Barrancas, could not see the army buildings; and on that side there was no outlet except a small gate leading to the surgeon's quarters, through which none but officers and visitors to the surgeon's family passed. The present road in front of the hospital did not exist in the year 1843, but was cut out in 1850 by order of my father, the civil engineer-in-chief of the navy yard; and prior to the last-mentioned year the road from the yard was from the north instead of the west gate, as it is now, and wound to the north gate of the hospital through woods so dense that objects one hundred yards off were indiscernible, and one came on the Barrancas suddenly and without being aware of its vicinity. Without emphasizing the fact that the citizens and troops at Barrancas spoke a different language from that of the yellow-fever patients, they could not possibly have had any communication with those men, since a permit from Dr. Isaac Hulse, U. S. N., was required in order to enter or leave the enclosure. Besides, Dr. Moore does not state that he ever entered the grounds or visited the sick men. The residence of Dr. Hulse was within the enclosure and 200 feet from the yellow-fever quarters. His family and servants were natives of Pensacola, and this officer, in answering a letter addressed to him on the 9th of November, 1847, by "Monsieur Dubrueil, commandant-en-chef de la subdivision navale française, en station dans la Golfe du Mexique," thanking him for his treatment of French seamen from 1841 to that date, while admitting that he rendered medical service to the sick of two other vessels, viz., the *Sabine* and *Dunois*, expressly says that it is a mistake that he attended those of the *Gomer*. His exact words are as follows: "Hôpital maritime des États-Unis à Pensacola, le 11 decembre, 1847. On s'est trompé en supposant que je traitai les malades de la frégate à vapeur le *Gomer*; mais il est vrai que je traitai ceux de la *Sabine* et du *Dunois*." Supposing Dr. Moore to be correct, and that the patients from the *Gomer* were put in one end of the naval hospital, that wing being the one nearest to the quarters of Surgeon Isaac Hulse and to the Barrancas, but at the same distance from the latter, as the building which, according to the records, was assigned these men, it must be remembered that Dr. Hulse and his household were acclimated. With regard to the Army officers, it seems unlikely that they visited the place, being aware, as they were, of the presence of the disease. One wing of the naval hospital was isolated from the other, there being over 100 feet between them, which was filled up by a wide hall and a number of rooms; hence there must have been little, if any, intercourse between French and American sailors. Besides, when I was a student

of medicine under Surgeon G. B. B. Horner, U. S. N., in charge of that hospital in 1859, the men were not allowed to pass from one end to the other. Mrs. Hulse, widow of Surgeon Isaac Hulse, assures me that during the prevalence of the disease no one but her husband was permitted to visit the navy yard, and he only when business necessitated it. With regard to Dr. Moore's statement that no effort was made to establish a quarantine, his memory is either at fault or he is only referring to an Army one. I enclose you a copy of proceedings in this city :

CITY OF PENSACOLA, *Aldermen's Office.*

Whereas it has been represented to the mayor and board of aldermen that since their last meeting, which was called by his honor the mayor, to take into consideration what steps would be necessary to be taken to prevent the introduction of the yellow fever into the city, it having been communicated to his honor that some cases had occurred on board of the French steam-frigate *Gomer*, now lying at anchor in the bay ; and whereas it has been reported by the health officer that the number of cases have increased : Be it, therefore,

Resolved, That his honor the mayor cause the said steam frigate to be removed from her present station as near to the land on the opposite side of the bay as can be done with safety to her.

Be it further resolved, That none of the officers or men, nor any article of clothing, or anything else belonging to said frigate, be landed, nor shall any of their dead be buried within the limits of the city, until the further order of the mayor and aldermen of said city.

FCO. MORENO,
President pro tempore.

Passed August 12, 1843.

Approved August 12, 1843.

C. EVANS, *Mayor.*

MAYORALTY OF PENSACOLA, *August 13, 1843.*

SIR: In consequence of the sickness on board of His Majesty's steam-frigate *Gomer* having assumed a different aspect to that which was reasonably expected when I communicated with Commodore Regnard, on the 9th instant, the city authorities, at the earnest solicitation of the citizens, have deemed it prudent to establish a rigid quarantine from and after this date. So much of their resolutions and acts as relate to the said steam-frigate *Gomer* are herewith annexed. A strict compliance therewith is expected, without any unnecessary delay. All vessels arriving in future will be subjected to the same restrictions and regulations. You will be pleased to communicate this, together with the enclosed resolutions, to Commodore Regnard forthwith.

With sentiments of esteem, I have the honor to be, sir, very respectfully, your obedient servant,

C. EVANS, *Mayor.*

JOHN INNERARITY, Esq.,
His Majesty's Vice-Consul.

From the above it will be seen that Pensacola, at least, established and enforced a quarantine. The papers from which the above copies were made were recently given me by Mrs. Hulse, widow of Dr. H., and daughter of the above-addressed French vice-consul, Mr. Innerarity. Mrs. Hulse, besides, tells me that during the sickness a vessel from New Orleans came over with ladies and gentlemen, friends of the officers of the *Gomer*, on a visit to that ship, and that the party were not permitted to land, but were made to return as they had come. With respect to the military and naval reserves, if no formal quarantine was established, it is reasonable to infer that the numerous difficulties surrounding any wish on the part of the inhabitants to cultivate the acquaintance of the sick of the *Gomer* may have proved a most effectual quarantine. Difference of language, a full knowledge of the presence of a malignant disease, coupled with the fact that the Frenchmen were in a building 200 feet at its nearest point from the high fence which surrounded it, and that the gates of the latter were guarded night and day by vigilant watchmen, would prevent, in most cases, if not in all, any attempts at intimacy. I, for my part, consider these yellow-fever patients to have been almost as completely isolated as it was possible for them to be, and that no one was in any danger of contracting the disease but the attendants, and as these, from my information of the hospital arrangements during Dr. Hulse's administration, must have been Creole negroes from this city, a class generally exempt from yellow fever, the chances of its becoming epidemic seem to me to have been limited to a mere possibility.

I have given the above facts, obtained from Dr. Hulse's papers and other reliable sources, not from a desire to controvert or refute the opinion of Dr. Moore, but because, in the interest of humanity, I deem it important to show that, in the instance to which he alludes, and which seems to have strengthened a preconceived idea, important facts, from lapse of time, have escaped his memory, or else that, his mind being made up on the subject, he failed to notice any but the one, which he considered "confirmation strong as proof of Holy Writ" of his conception that yellow fever was not contagious or infectious. The latter is what I consider it. From the evidence produced, it seems sufficiently well established that there was no way, except the winds, of disseminating the disease among the troops at the Barrancas, and by reference to the accompanying map of the harbor, taken from United States Coast-Survey Charts and Land-Office maps, it will be seen that the building specified by me as the "French Yellow-Fever Hospital," otherwise known as ward No. 3, is there laid down by the coast-sur-

veyors. Now, by noting the direction of the winds which prevail here at that season, it will be seen that they are from the south and southwest, with an occasional norther late in the season, and that these winds would blow directly from or over the quarters of the naval surgeon, or the reverse, and not in the direction of the troops, who were further protected by the belt of thick woods mentioned before, and which, even in 1853, the fever did not cross until taken there from Warrington by a drunken soldier. See report of Surgeon J. F. Hammond, U. S. A., already alluded to, and also that of Surgeon B. F. Gibbs, U. S. N., for account of exemption of the same place during the epidemic of 1863. Dr. G. states there were a double line of pickets and absolute quarantine between the navy yard and the Barrancas, and that at the latter only two mild cases, late in the season, were reported. That there were any persons affected, I consider as proof that the quarantine was not so absolute as supposed, and, from my knowledge of the grounds as they were then and are now arranged, I regard it as almost impossible to enforce an absolute one, and that the only true way to accomplish it is the method of complete isolation, adopted by General Seymour in 1867 and by General Brannan in 1873, which was to remove the troops to Fort Pickens, on Santa Rosa Island. On both occasions this prompt action was attended by a fortunate result, and may be received as proof that the disease is not of domestic origin; otherwise, considering the topography of the two places, pestilence, it must be admitted, would be far more likely to generate at Pickens than at Barrancas. See also the report of one of the assistant surgeons stationed at the Pensacola navy yard in 1867, published in the Medical and Surgical Reporter, of Philadelphia, for March 14, 1868, in which mention is made of the yellow fever having in the first-named year extended to this "dense belt of woods, one-fourth of a mile through." I also desire to call attention to the report, before quoted from, of Surgeon S. P. Moore, from Fort Brown, Texas, in 1853. In regard to the fever there in that year, he says:

In the first part of the month, and before the appearance of the epidemic in town, a good deal of fever existed among the crew of the steamer *Comanche*, undergoing repairs at the mouth of the Rio Grande. This fever was called the dengue. Some deaths occurred. I do not know what physician attended these cases. No river communication existed between the steamer and the town; some two or three well persons came up to town by land.

The town here referred to, and adjoining the fort, is Brownsville, and Dr. M. says the first case occurred in the town (to which before its appearance there the well persons had come) on the 23d of August,

MAP OF PENSACOLA, FLA.

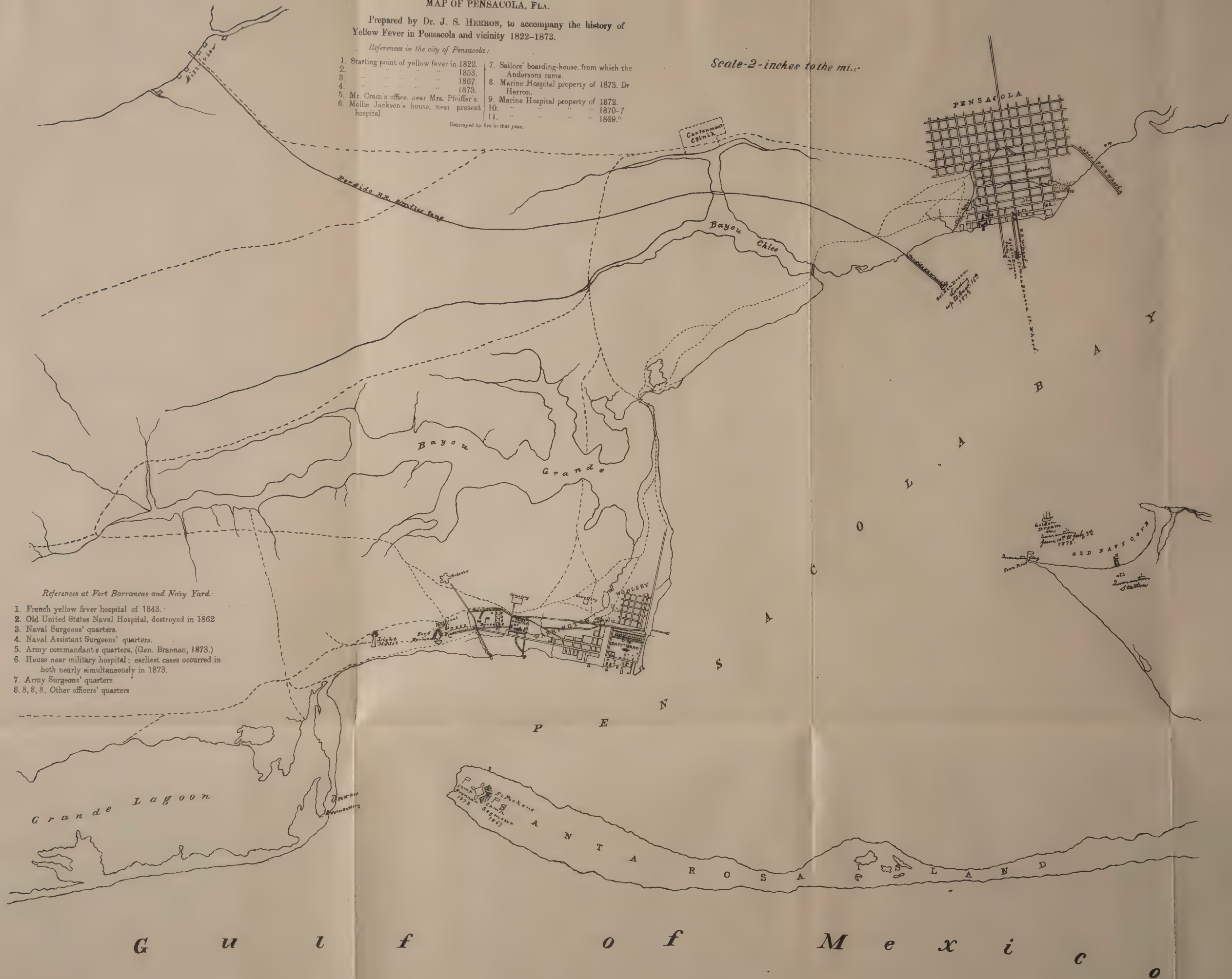
Prepared by Dr. J. S. HERRON, to accompany the history of
Yellow Fever in Pensacola and vicinity 1822-1873.

References in the city of Pensacola:

- | | |
|---|--|
| 1. Starting point of yellow fever in 1822. | 7. Sailors' boarding-house, from which the |
| 2. " " " " 1853. | Andersons came. |
| 3. " " " " 1867. | 8. Marine Hospital property of 1873. Dr |
| 4. " " " " 1873. | Herron. |
| 5. Mr. Cram's office, near Mrs. Pfeiffer's. | 9. Marine Hospital property of 1872. |
| 6. Mollie Jackson's house, near present | 10. " " " " 1870-7 |
| hospital. | 11. " " " " 1869. |

Destroyed by fire in that year.

Scale-2-inches to the mi.



References at Fort Barrancas and Navy Yard:

1. French yellow fever hospital of 1843.
2. Old United States Naval Hospital, destroyed in 1862
3. Naval Surgeons' quarters.
4. Naval Assistant Surgeons' quarters.
5. Army commandant's quarters, (Gen. Brannan, 1873.)
6. House near military hospital; earliest cases occurred in both nearly simultaneously in 1873.
7. Army Surgeons' quarters
- 8, 8, 8, 8. Other officers' quarters

and before there was any at the fort. Does this not seem to point to the steamer *Comanche* as the source? Attention is likewise called to report, in same work, page 323, of Assistant Surgeon R. F. Simpson, U. S. A., Key West Barracks, concerning the yellow fever there. He writes:

In August, 1853, two soldiers were sent to this garrison from Fort Brooke, Tampa. One died of yellow fever shortly after his arrival, and the other died of the same disease in September. The first case that I can hear of in town was a young lady, who came from Tallahassee; she died in November, 1853, and from that time till April, 1854, there were a few cases and some deaths. From April to August the disease became general.

Drs. Moore and Simpson both express belief in the domestic or local origin of the disease; and I have quoted from their reports, because I think they contain sufficiently strong evidence of the means by which it was imported. Again, by reference to the same authority, viz., Medical Statistics. U. S. A., 1839 to 1855, it will be found, on turning to page 335, that yellow fever was prevailing at Fort Brooke when the two soldiers left there for Key West Barracks, and it was also prevailing in Tallahassee in the summer of 1853.

In conclusion, I will state that my ideas in regard to the nature and origin of yellow fever have been so well expressed by Surgeon George M. Sternberg, U. S. A., in his article in the American Journal of the Medical Sciences (Hay's) for April, 1873, page 399, that I will simply copy them:

1st. The yellow-fever poison is not an emanation from the persons of those sick with the disease.

I must interrupt the quotation at this point to observe that while this hypothesis may possibly be correct, I am not prepared to assert it as a fact, but in all of the following opinions I fully concur. And now to resume:

2d. It is not generated by atmospheric or telluric influences. A certain elevation of temperature is, however, necessary for its multiplication, and its rapid increase is promoted by a moist atmosphere, and probably by the presence of decomposing organic matter.

3d. The poison is portable in ships, goods, clothing, &c., and a minute quantity is capable of giving rise to an extensive epidemic.

4th. Exposure to a temperature of 32° Fahrenheit completely destroys it.

5th. It may remain for an unknown length of time in a quiescent state, when not subjected to a freezing temperature or exposed to the conditions necessary to its multiplication, and may again become active and increase indefinitely when those conditions prevail.

6th. While liability to the disease and its severity when contracted depend, to a certain extent, upon age, sex, temperament, previous

habits, and acclimation, they also depend to a great extent upon the degree of concentration of the poison; that is to say, the larger the dose, the greater the possibility of an attack, and the greater its severity.

In coinciding with this statement, I wish it understood that I have only reference to the disease as it occurs in the United States. I was under the impression that it originated in New Orleans, until the contrary was proved, during the occupancy of that city by the United States troops during the late war. There is, I think, indubitable evidence to prove that yellow fever is a native of the tropics, and that its importation into the United States could be prevented by a strict quarantine; that is, total isolation. That such a system of isolation is effectual has, I think, been sufficiently illustrated by instances quoted in this article, and is, besides, abundantly proved by hundreds of others, recorded in the histories of the various yellow-fever epidemics in this country. In order to insure an effectual quarantine, the surgeon in charge should be an officer of the Army, Navy, or Marine-Hospital Service, the institution a Government one, and the occupant entirely removed from all political or local influences.^(a) To exemplify this, and for no other object than the public good, I will mention an occurrence of last year. On that occasion the contract for carrying provisions to the quarantine station was given to one of the chief stevedores here, and he and all his family were among the first who had the fever. The appointment of this person, living in the town, was opposed by the quarantine doctor; but he was overruled, and such influence brought to bear as secured the applicant's appointment. The same stevedore is this year an alderman, and, having less cause for personal dread of the fever, there is reason to fear that he may again aid in its introduction.^(b) I was, last year, twice offered the position of quarantine physician, but on both occasions declined. It is by no means an enviable position, as the doctor has to contend with interested merchants, ship-owners, and others, and, no matter what efforts he makes, he is always pronounced wrong.

It may be further remarked that the pay should be sufficiently liberal to command the services of efficient, competent, and incorruptible medical officers, and to make them independent of local influences.

In enumerating the yellow-fever epidemics in this section, I have omitted to mention a pestilence which prevailed in 1846, at the navy

^a The reporter's views concerning quarantine have already been sufficiently indicated; but the reader who is interested to know what "was proved" in New Orleans by the maintenance of quarantine through "the exercise of absolute and relentless military authority," is commended to a brochure by STANFORD E. CHAILLÉ, A. M., M. D., &c., entitled *The Yellow Fever, Sanitary Condition and Vital Statistics of New Orleans during its Military Occupation*.—R.

^b Dr. Herron's apprehension was justified in this case, and the person referred to was dismissed from the Board of Aldermen in June of 1874, and fined fifty dollars for violation of the quarantine regulations.—R.

yard and at Barrancas, because, though generally spoken of here as yellow fever, such was not the verdict of Surgeon Isaac Hulse, U. S. N., president of a board of physicians convened to investigate and report the nature of said fever, and composed of the following officers: Surgeons Terrill and Spencer, U. S. N., and Surgeon Stinneck, with Assistant Surgeons Abadie and Steiner, of the United States Army. The board convened at the United States naval hospital near Barrancas, in compliance with an order, dated September 28, 1846, from the Navy Department. The report was sent in on the 13th of November, and the board was dissolved by an order from Secretary Mason, December 2, same year. I have not been able to find this report; but it must be in the Naval Bureau. Dr. Hulse's notes, in the rough, apparently made for the benefit of the board, are, however, in my possession. In them he says the disease was not yellow fever, and ably argues the case, stating the difference of symptoms, and dwelling particularly on the fact that quinine was the only thing that could be relied on to check or control the disease, and that it has no such effects in yellow fever. Dr. Hulse had a high reputation in the service, and at this place, for skilful treatment of yellow fever, and I agree perfectly with him in regard to the use of quinine in the latter disease. I have never seen any benefit arise from it, except as a tonic sometimes when the patient was convalescing. The report of Dr. Abadie, U. S. A., in the Medical Statistics, U. S. A., from 1839 to 1855, page 335, exactly agrees with that of Dr. Hulse, as he simply calls it "A fever which prevailed at Barrancas Barracks in the summer of 1846," and it is not classed in that work as yellow fever. There is also a tradition here that the board reported that pestilence as a "mongrel fever, and not yellow fever." This testimony, I think, justifies its omission from the list. That sporadic cases of yellow fever have occurred here in the intervals of the various epidemics is well known, but most if not all these cases can be traced as having come off of vessels or from infected places.

I thoroughly believe that infected articles which have not been exposed to a freezing temperature can convey the disease from one season to another. I consider the most reliable method of disinfecting a ship is to batten down her hatches and reduce the temperature of her hold to 30° Fahrenheit, and to keep her in that condition for four or five days, so that the bilge-water may remain frozen for that length of time. No further danger need after that be apprehended, and any subsequent appearance of fever on board must arise from fresh exposure to its influences.

We do not find that vessels remaining here all summer, no matter

how dirty they may be, ever generate yellow fever. This only occurs with ships from latitudes below the region of frosts, and where this disease prevails for nearly the entire year.

With respect to the circumstances usually considered favorable to the propagation of yellow fever, I must say that last year presented, in my opinion, no remarkable variations from its predecessors. The average range of the thermometer, (in the shade,) as kept in this city, was just 80° for the summer, while in 1822 it was $82^{\circ}.75$, and in 1853 it was $80^{\circ}.76$, and the fall of rain for the latter year immensely less than for the preceding and succeeding ones. It was, in fact, a dry summer, the first copious rain being in September. It will be seen, on consulting the Medical Statistics of the United States Army, 1839 to 1855—for temperatures, page 531, and for rain-fall, page 572—that yellow fever prevailed in 1822, when the temperature was within one-half a degree of the highest recorded range, and last year at the lowest; and that from the warmest summer to the coolest the difference was only $3^{\circ}.25$, and the greatest difference between the epidemics, $2^{\circ}.75$. It has prevailed between these extremes, and may do so any summer, if introduced, as it is apparent from the above that the surroundings do not differ very materially, and that the fever has been epidemic when the weather was hot, when cool, when damp, and when comparatively dry; hence it seems conclusive that there are sufficient heat and moisture in all those temperatures to propagate the disease if the germ be supplied. It prevailed at Key West as an epidemic in 1854 as early as April, with the temperature $73^{\circ}.89$, (see Report of Dr. Simpson, United States Army Medical Statistics, &c.,) and at the Pensacola navy yard August, 1867, with the average for August of $83^{\circ}.9$. It will hence be seen that the difference of temperature between the outbreak of the fever at Key West in 1854 and those at the navy-yard in 1863 (see Surgeon Gibbs) and 1867 (Medical and Surgical Reports) was 10° on the days of its first manifestation at each place. This accounts for the opposite conclusions reached on this subject, and shows why some contend that a high range of temperature is required for an epidemic, while others assert a medium or low one is most favorable and necessary to it. Each argues from his own limited experience, and some are so positive and dictatorial in the maintenance of their own opinions as to permit the introduction of the disease into a place, or to deny its existence when really there, if the temperature or atmosphere does not support their peculiar views, and a pet theory is thereby in danger of being spoiled. Witness the cases of congestion and of pernicious fever reported in the beginning of nearly, if not all, epidemics, and then the

change after a case of black vomit, and the acknowledgment that some of the former cases were yellow fever. Yet if similar ones in every respect have occurred a month previous, they are not acknowledged as such. Facts are preferable to theories, and are, moreover, too stubborn to brook control.

If yellow fever gain access to three or four houses in the city, the surrounding circumstances are, I consider, sufficiently favorable any summer to cause its dissemination; and the instances frequently quoted here to prove the contrary are confined to individuals admitted to the marine or other hospitals during the course of the different summers. But when there was no case in the town—I am speaking now entirely of this place—I have yet to learn of a single instance in which yellow fever was introduced into Pensacola or any of the villages of this harbor from any of the hospitals, although patients suffering from that disease have been received therein and treated nearly every season. Last year the fever had broken out in the town some time previous to its introduction into the marine hospital, and quite a number of the first cases had been on board the infected ship, and thus brought it into the city. The same was the case in 1853, and also in 1867. Parties off of vessels were taken to private residences. And, once more, let it be noted, that in 1853 the troops at Barrancas did not contract the fever from the naval hospital, which was within 300 yards of them, and crowded with yellow-fever patients, but from a drunken soldier. (See report, already quoted, of Dr. J. F. Hammond, U. S. A.)

The city of Pensacola is situated on the north side of Pensacola bay, nine miles from the entrance, in latitude $30^{\circ} 24' 36''$ north, longitude $87^{\circ} 13'$ west, and with a gradual slope of from 5 or 8 feet at the shore to 20 feet a quarter of a mile back, where there are several hills which rise suddenly to a height of from 35 to 40 feet. For the first three blocks, the average height of the town is from 8 to 10 feet above tide-water, and for the next three there are spring branches and swampy ground, covered for about two-thirds of the surface with dogwood, bay, ti-ti,^(a) and various thick undergrowth. This is partially ditched and drained, but is so boggy during almost the entire year that plank walks have been laid in order to permit pedestrians to cross it, and the roads for vehicles have been ditched and covered with ballast to render them passable. Immediately above this, and six blocks from the water's edge, the ground, which is a dry, sandy ridge, is several feet higher;

^a Dr. H. mentioned to the reporter that where this ti-ti had been cleared away miasmatic diseases, previously unknown, became prevalent. The ti-ti is a woody shrub growing to the height of, perhaps, twelve to fifteen feet, and is covered during the flowering season with multitudes of a very odorous blossom. Coupled with Mantegazza's discovery of the ozoniferous properties of odorous plants, and the agency of the eucalyptus in reclaiming marshy fever regions, the ti-ti is worthy attention by the local sanitarians of the Gulf States.—R.

and here, for the next three or four blocks back, are to be found the residences of the majority of the more affluent citizens. Some of this class, however, have their homes in the swampy section, or in the business portion of the town. This latter comprises the first three blocks, to which the original city of Pensacola was limited in the old Spanish and English times. The outskirts of the swamps and the lower portions of the city are, for the most part, occupied by sailors' and stevedores' boarding-houses, drinking-saloons, negro huts, and dens of all sorts. This condition of affairs is not, however, of recent origin, and was no worse last year than at any other time; besides, the epidemic did not break out in these places, but in houses remarkable for cleanliness, but whose inmates had been exposed to the infection and were most susceptible to its influence.^(a) The fever, however, became very general before the end of the season. The water-side dens had less of it than elsewhere. I consider it probable, however, that most of their inmates had had it in some previous epidemic; for strangers, sailors and others, living there, were usually attacked. The swampy part of the city, which has been already described, is built on to quite a limited extent. It was in as good a condition last year as in any previous one, and it could have had nothing to do with the epidemic, since the first cases were below and one above its limits, and persons residing there were not more liable to be attacked than were those who lived in other portions of the city.

In regard to treatment, I have very little to add to what has been already written, but, as I have been quite successful in the last two epidemics, it may cause some slight desire to know the mode adopted. It is the simplest: When the patient is seen in the first stage during the fever, (in the first twelve hours, if possible,) I resort to a hot mustard bath, either a full bath or only to the knees, according to circumstances. The patient is then put in bed and well wrapped or covered with blankets, and supplied with ice-water and permitted to drink it *ad libitum*. If there be any irritability of the stomach, a mustard-plaster about the size of the palm of the hand is applied to the cardiac portion of the stomach, and, as it becomes uncomfortable, moved to another place, and so on around that organ, thus keeping up the action for an indefinite length of time. When the stomach is not too irritable, castor-oil or the *oleum ricini* capsules, are given by the mouth; otherwise an enema of *oleum ricini*, oz. ij; *oleum terebinthinæ*, gtt. xx; *vitel. unius ovi*; *aqua ferv.*, Oj,

^aThis cannot be held to weaken the argument against filth and uncleanness. The first case is proved to have been doubly exposed, first from the visits of a New Orleans refugee, and next from the fever-laden breath of the *Golden Dream*, the house lying in the direct course of the prevailing winds from that vessel. And so with the unfortunate sailors' missionary who was the next victim among the residents. He contracted the disease in their haunts.—R.

to be used and repeated until the actions are free. I generally find, however, that the *oleum ricini* is well borne by the stomach, and when the dose is large acts efficiently. If there be suppression of urine, a cloth (flannel is preferable) well soaked with *oleum terebinthinæ* is applied over the region of the kidneys; this application is repeated until the flow of urine is copious. It is usually brought on by this means in two or three hours, if not sooner. The hot bath is repeated, if at any time the perspiration becomes checked; so also are the mustard-plasters, if required for irritability of the stomach, or to act as revulsives or counter-irritants. The doors and windows are to be kept closed, and all draughts are to be avoided, and sudden changes of temperature are to be guarded against, as I believe, with Surgeon Gibbs, U. S. N., that a sudden change of temperature—he says of 5 degrees, I think of 8 or 10—will prove fatal. Draughts produce equally serious results when the patient is sweating profusely. When there is only one sick person in a room, I consider ample ventilation is afforded by the cracks of the doors and windows, and by the fire-place when there is one in the room; and I believe that that word “ventilation” has, in this disease, killed more persons than anything else, as all here understand it to mean that doors and windows are to be kept open, or partly so, day or night, south wind or norther. The patient is seen at one time sweating profusely and much improved, and the next, after these “ventilations,” with a dry skin, delirious, trying to get up, or complaining bitterly of a return of the pains and aches, with a suppression of urine, or else comatose and in a state of congestion. I give, as before stated, ice-water, as cold as it can be made, and without stint, or small pieces of ice, as frequently as desired—that is, after the hot bath. It causes the perspiration to flow freely, besides producing it in much less time than when hot drinks are resorted to. It is, moreover, infinitely more grateful to the patient, and is a much more rational mode of treating and subduing inflammation, in which state the stomach is known to be. It is also well known to be acceptable in all fevers, and to have a tendency to alleviate them; it likewise soothes the irritability of the stomach and has a tendency to check hemorrhage and vomiting, while warm drinks frequently sicken, produce vomiting, and are not agreeable to the patient, and, I am confident, are the almost invariable cause of the patient’s attempting to rise and go out in the air. What does he almost invariably attempt to do under this treatment? To rise and rush to the water-pitcher or ice, if there is any in the house; or, if he be delirious, he seeks to reach the bay or any other water that can be found. I have never had a patient to get

out of bed or attempt it, since, after the second case, in 1867, I adopted this treatment; and they do not become delirious. Though they complain bitterly of lying so long in bed, and ask to have their clothing changed, I never allow it until the eighth day, and then it must be done carefully, with all the doors closed, and the fresh clothing must be well dried. I permit them to turn freely in the bed, provided the covering is kept on and the perspiration is kept freely flowing, which is usually the case when the patient is well wrapped up and supplied with ice-water. The patient is given no food while the fever is on, and, in fact, seldom has any inclination for it. Ice-water suffices, and afterward a little lemonade, mint-water, or claret sangaree, all of them iced, are agreeable; or else a little tea and soda cracker may be given. I give the latter because it is light and so dry that they will seldom eat much of it. On the fourth or fifth day light chicken soup may be given, and by degrees stronger soups and better diet, as soft-boiled eggs, &c. I would dwell particularly on the necessity of keeping the patient in a recumbent position for at least seven or eight days, the perspiration freely flowing for three days, and a gentle sweating kept up for two more, or longer, as the case may require, and in no case to allow it to be suddenly checked, and to see that the urine is passed freely and that the bowels are open. On the seventh or eighth day, if the weather be favorable, open one of the southern doors or windows, and afterward, by degrees, the others, seeing that the patient is not in a draught. On the seventh, eighth, ninth, or tenth day, as the case may be, the patient, if otherwise doing well, is allowed to sit up. I usually visit him or her for a day or so longer, then dismiss the case. A tonic of quinine and iron is given after some of these cases, but the former is not prescribed at any other time, and calomel not at all.

It will be seen that my treatment is intended to combat the inflammation, reduce the fever, and cause the disease or poison to be eliminated by the skin and other emunctories. It is well known that it is by the skin principally that this is accomplished, and it is also well known that if a patient, while sweating, be exposed to a draught, congestion and delirium will ensue on the checking of the excretion; there will be suppression of urine, possibly also constipation, and death, either with or without black vomit. I will give an illustration of the effect produced on animals, in perfect health, by checking this elimination. It is to be found in the *The American Journal of the Medical Sciences*, (Hay's,) for April, 1873, page 527:

7. *Suppression of perspiration.*—Socoloff gives an abstract of the results which follow varnishing the skin and suppression of the cutaneous secretion.

1. A few hours before the death of the animals so treated, clonic and tetanic spasms appear in various groups of muscles, while the temperature in the rectum sinks in a marked degree.

2. Enveloping the animals in wadding did not seem to raise the temperature or arrest the fatal result.

3. Respiration of oxygen proved ineffectual to resuscitate the animals.

4. In the stomach ulcers were observed, the result of deep extravasations.

5. Albumen appeared in the urine very soon after the skin was varnished.

6. In all cases a diffuse parenchymatous inflammation of the kidneys was observed, sometimes swelling of the cells, and sometimes fatty degeneration. This result was independent of the nature of the varnish used, whether turpentine varnish, or gelatin, or gum. Lang (Arch. d. Heilkunde, XIII, pp. 277–287, 1872) investigates the cause of death when the skin has been varnished. In addition to other phenomena, he found an hour or two after death “triple phosphate crystals” in various parts of the body, and some of the uriniferous tubules blocked with a finely granular dark mass. He thinks that the triple phosphate crystals are the result of decomposition of urea, and the cause of death is uræmia.

I ask if the above symptoms are not the same in yellow fever when the perspiration is checked, and if it is not followed by suppression of urine, and the patient does not die with all the symptoms of uræmic poisoning. I will also state that it is important to relieve the patient's mind of all anxiety; to assure him of the very probable favorable termination of the disease, which will result on strict adherence to directions, and to impress the same on his relatives and attendants. I almost invariably repeated the directions every time I called, and warned the parties that, although they seemed trifling, they were, in reality, most important, and that everything depended on their strict observation. The doctor should sit down and talk to the sick person and his friends, and exhibit no alarm or concern, lest the patient become frightened. I usually tell them, “You are doing very well, and I shall almost certainly have you up in a week or eight days, if you will lie quietly and do what you are told.” I, however, never trust them, but have always some one with them, a relative, if possible, as they are the best and most reliable nurses. Friends are too apt to consult their own comfort instead of the patient's welfare, and to open the doors and windows, and to indulge in all sorts of imprudent gossip, in stage whispers with each other concerning the progress of the epidemic, the last case of black vomit, and the similarity of symptoms between some person who has just died and the one they are nursing. And if you remonstrate with them, they answer: “O, he can't be frightened. You don't know him, doctor.” Then they are frequently officious, and as soon as your back is turned, if you have

prescribed cold drinks, they substitute hot lemonade, because some other doctor, a friend of theirs, uses them, and perhaps throw open all the doors and windows, but when you return they are on the cold drinks again, and everything is fixed your way. It is important to treat, if possible, only one person in a room, as the depressing influence of a death in the same apartment is terrible. In hospital, I remove very bad cases, cot and all, into a separate ward; for the above has allusion almost entirely to private practice. The cases in hospital are usually of a worse type, the surrounding circumstances tending to make them so. They are soldiers, sailors, and paupers, and commonly, though not always, drunkards, and come in in the second stage, with little or no history, or in a state of congestion and comatose. These are the cases that swell the hospital's mortality, as they are generally past all human aid. By having a number of small separate wards for yellow-fever patients, so that they can be treated singly, and by careful attention and cheering them up, I think many might be saved who are now lost. Good nursing is nearly if not half the battle, and that is why I have devoted so much space to *minutiæ*. The patient should never be told directly that he has yellow fever. I usually say, "Well, you have some fever; but if you follow directions all will go well," &c.; and on being asked by some if they had dengue, I replied, "Well, yes, it will pass for that," and then privately told the relatives or nurses to recollect that the patients had dengue just so long as they lay there and followed directions; but if they got up or committed any other imprudence, it would instantly become yellow fever, and *death* the probable result. This is usually effectual.

Memphis: August 10—November 19.

Small-pox, cerebro-spinal meningitis, and cholera had already prevailed in Memphis to an unusual extent during the year, prior to the arrival of the steam-tug *Bee* on the 10th of August. This boat left New Orleans, where she had been lying in the Fourth District in the neighborhood of the *Valparaiso* and the *Belle Lee*, on the 2d of August, and on her way up, at the mouth of the Red River, took on an old man named Davis, who had been in Texas, and on his way home to Alabama passed through Shreveport, La., but before the disease had made its appearance, or at least before it was recognized at that place. During the trip to Memphis this man, the captain, and several of the crew were attacked with what was regarded by three physicians, one each at Helena, Memphis, and Osceola, as "malignant bilious fever."—(Erskine.) On the arrival of the boat at Memphis, this

man and one of the deck-hands were put ashore very ill, unable to take care of themselves, and were cared for, the deck-hand in the house of a man named Riley, in Happy Hollow, near the landing, where he died within a few hours; and the passenger Davis, at the Adams-street station-house, where he was carried and died during the night. The next day the body of the captain was brought back from Osceola to Memphis, and lay uncoffined on the wharf for several hours, presenting all the appearance of a yellow-fever corpse.—(Thornton.) None of these cases were pronounced at the time to be yellow fever; nor even when Riley took sick and died a few days after, and then two women of his family, and one of his neighbors, was it supposed to be other than a malignant grade of bilious fever common to such a region as Happy Hollow, of which Dr. Erskine gives the following description:

What in Memphis is called Happy Hollow is a very low, flat area of about four acres, immediately on the river, near the northern limit of the city. It is under the Chickasaw Bluffs, so sunken that during high water it is largely submerged; but after the river has fallen it is left partially covered with stagnant ponds and slimy ooze, whose exhalations are noisome and offensive. Its soil is alluvial, and upon this garbage has been continuously thrown until it has become extremely filthy. It is the natural drain for the gutters of the over-hanging bluffs, through which sewerage steadily trickles. It is, in addition, the home of a low class of Irish, and the favorite landing place of flats and rafts, whose occupants are proverbial for their carelessness and uncleanness. During the hot summer months this accumulated mass of filth lies festering and rotting in the sun, exhaling mephitic gases, and only needing the germs of yellow fever to be sown upon it to yield the fearful fruits of a great epidemic.

The disease spread from house to house in this locality still without recognition of its true character. A Mr. Miller, owner of the Panola Oil Works, a large establishment situated within a stone's throw of Riley's house, and his book-keeper were taken sick on the 25th; Mr. Miller recovered, but his book-keeper died on the 29th. On the sixth day of sickness Mr. Miller was back at his office, not knowing that he had had yellow fever. Two more of his men fell sick. One came out after two or three days' sickness, to tell Mr. Miller not to have his place filled, and died two days after. Another came to the factory, after thirty-six or forty-eight hours' sickness, to draw six dollars which was due him; the next day he was dead. This shows how ignorant the people were about the nature of their malady.

Le Monnier, from whom the foregoing is quoted, makes the following comparison and deduction: "This place (Happy Hollow) receives the north wind in full, but in summer is deprived of the south wind, which

passes over it from the bluffs. It is not well ventilated, but is directly subject to the fogs of the Mississippi, which render its atmosphere more or less impure. In this hollow are also two or three large manufactories which occasion more or less dirt. It, as also the northwestern portion of the town on the bluffs, is inhabited by the poor. Here was the quintessence of misery, agglomeration, dirt and filth. The Adams-street station-house, on the other hand, situated half a dozen squares southeast, in the city, is always kept in a good sanitary condition. It results from these two situations that the atmosphere of the former is more or less impure, that of the latter comparatively more or less pure. Now, two men were put off the tow-boat *Bee*—one was received in Riley's cabin, in Happy Hollow, the other was brought to the station-house; both died. Riley was a dissipated man, living in an unhealthy locality; he caught the fever and died. From this, it spread through Happy Hollow. At the station-house the men were more regular in their habits, in a healthy locality, and no new cases occurred after the death of the *Bee* invalid. A very important question here arises: Why did two men coming from the same place (New Orleans) die of yellow fever, one communicating the disease, the other not? I see no other reasonable answer to the question than that above given—salubrity *versus* insalubrity; regular habits *versus* irregular habits."

From this region, in which it spread block by block in the direction of the prevailing winds to the north and east, cases began to be carried into other portions of the city. On the 28th of August, a child, the sole survivor of one of the families in the neighborhood of Riley's house, at the foot of Market street, was admitted to St. Peter's Orphan Asylum; took sick on the 2d of September, and died on the 7th. For twenty-four hours previous to death the attending physician, Dr. G. B. Thornton, states that it had unmistakable black vomit. This is probably the first case which was recognized as yellow fever; and the first officially-recorded case of the disease is that reported on the 2d of September by the same gentleman, the physician in charge of the City Hospital. This patient was admitted to that institution very ill with yellow fever; had evidently been sick several days, and died on the third. Cases now began to multiply in other portions of the city, and on the 14th of September the disease was declared to be epidemic. The sanitary condition of the city beggars description. One of its daily papers makes the following comments:

We have no system of sewerage in Memphis, and the necessary consequence is that the filth of the city is left to take care of itself. Our sanitary police consists, for the most part, of some half dozen of the

chain-gang, who occasionally do little more than emancipate the confined odors of the kennels of Main street, and give wings to imprisoned effluvia. Our alleys and obscure streets are left to the rag-pickers, to porcine and canine scavengers, to cleanse them of their superfluous foulness, and were it not for the rains of pitying heaven would of themselves give abundant employment to our undertakers and gravediggers. And yet these are the least of the objectionable features touching the violation of the laws of hygiene in Memphis. Nearly every family in the city is dependent upon a cistern for its supply of water; nearly every cistern is in the same yard, in close proximity to, and generally in a direct geographical line with, the privy. No intelligent man need be told of the percolative and absorbent qualities of the earth, and no Memphian need be reminded of the difficulty of finding cistern water in the city free from the impurities of animalculæ induced by decomposition. The train of evils following these disagreeable truths will suggest themselves to the intelligent reader without further elaboration. The great question with us now is to apply the remedy, and no time is better to awaken the community to a proper sense of the situation.

The community finally awakened by the disease reorganized its Board of Health on the 8th of October, nearly two months after the fever was first introduced. It was, however, too late for such efforts as could then be made, and the pestilence continued to rage not only until the long-looked for first frost, but even after repeated frosts and solid ice had been formed.

Eighteen hundred deaths occurred in seven weeks, out of a population reduced to twenty thousand by flight, and of this number a large community left every evening for homes in the country.—(Frankland.)

Dr. D. D. Saunders, who remained in the city during the epidemic, calculates that out of the remaining population, say 15,000, who slept in the city, about 7,000 had the fever, and of this number 1,800 died, or about 25.7 per cent. of those afflicted. But another writer (Cochran) claims to have seen a list of the deaths containing 2,000 names, which would give a mortality of nearly twenty-nine per cent.; and the reporter was assured by physicians, officials, and intelligent citizens of Memphis, that even this is below the actual number, since no deaths prior to September 14 were officially published as from yellow fever.

The disease is known to have been carried by the refugees to Wythe, where there were six cases; to Humboldt, where there were three; to Brownsville, where there were four; to Huntsville, Ala., where there were three cases with one death; to Grand Junction, where there was one case; to Corinth where there were three cases; to Holly Springs, where there were several; and to Louisville, Ky., where there were ten cases with five deaths; but at none of these places did the disease spread.

It would only be darkening counsel to repeat the various statements, made to the reporter in the following spring, of deaths in June and July of residents, some among them prominent citizens, from a disease claimed to have been in all respects identical with that which came to be known as yellow fever in September; for even if it be admitted—it cannot be proven—that such cases were sporadic indigenous yellow fever, it still remains clear that the disease which subsequently became epidemic is directly traceable to the cases brought by the ill-fated *Bee*.

Shreveport, La.: August 12—November 10.

Upon the outbreak of the fever on the steamers *Belle Lee* and *W. S. Pike*, at New Orleans, in the middle and latter part of July, some of the men who were engaged on board these boats left them and shipped on the Red River packets plying between New Orleans and Shreveport, navigation at that time being very good.^(a) On the 12th of August, according to Dr. Fenner, occurred the first case of yellow fever, of which he gives substantially the following details: Newton Walker worked and slept on the levee in a store which was closed, the firm having gone into liquidation; took his meals next door in an eating and lodging-house, a common resort of the lower class of boatmen, and of that class alone. Being unwell, he went to his brother's house, two and a half miles from town, where he was attacked with fever on the night of August 12; was much prostrated after the subsidence of the fever, turned yellow, and sent for Dr. F. about the 18th, to prescribe for "jaundice." At the time it was not suspected that this was a case of yellow fever; but two children who had not been away from the house were taken sick about the 25th, and died at the end of the third and fourth days, respectively, with all the well-marked phenomena of yellow fever, and the whole family subsequently sickened, and five or six died. On the 15th of August three boatmen were received into the Market-Street Infirmary, of which Drs. Allen and Fenner were the physicians, and although their suspicions were then aroused, yet with the natural reluctance to admit the existence of the dreaded disease, these cases were diagnosed as remittent fever; a diagnosis which, although the men recovered, was subsequently modified upon the development, on the 25th of August, of two cases of pronounced yellow fever in a private family across the street, and one case in Dr. Fenner's own house immediately adjoining the Infirmary.

During all this time cases of fever, variously characterized as "remittent," "pernicious remittent," "malignant," "congestive," &c., were

^a MS. Report of Dr. D. P. Fenner, dated January 12, 1874.

multiplying, and the mortality rate was increasing, when, on the night of the 19th of August, it was announced that three men had fallen dead in front of the Mechanics' Exchange, on Texas street. From subsequent inquiry, it was ascertained that these men had been wandering about sick, and two had laid down there and died, the other expiring before he could be got to the hospital. On the next day, August 20, the first deaths from yellow fever were recorded—Frank McNally and "one unknown found dead on the street." On the 21st there was another death, on the 22d four more; and cases, hitherto diagnosed as above but now recognized as yellow fever, developed on Texas street in and around the boarding-houses frequented by steamboat men, and the disease spread with remarkable rapidity from these centres, so that in about ten days it was epidemic almost throughout the entire extent of the town.—(Fenner.) A general exodus followed, which reduced the population from an estimated number of ten or twelve thousand to about forty-five hundred by the middle of September. Of this number, the best judges estimate that at least three thousand were attacked, and the mortuary records give 759 deaths, of which 639 were whites and 120 blacks. On the 20th of October the first frost occurred, and this was succeeded, in a few days, by weather cold enough at night to make ice of some thickness. The disease thence began to decline and continued abating from day to day, until, on the 20th of November, it was declared safe for absentees to return to their homes, the last death occurring on the 10th of November. As showing the malignancy of the disease, it is recorded that a large number of the inhabitants who had had yellow fever in 1867 were again attacked during this epidemic, and, although such cases were generally milder, a number of deaths occurred among them. Further: quite a number who had had the fever in 1853, and who had passed unharmed through the epidemic of 1867, were attacked this year, and some died.

Concerning the sanitary condition of the town the testimony is uniform, both from medical and secular witnesses, that, even in the midst of winter, the accumulated filth in the alleys of the city, which intersect the blocks, began to be offensive; spring came and passed, and there, untouched, lay the accumulated filth of many months, in the almost tropical sun of summer, in the very heart of the city. The most public thoroughfares of the city were neglected and uncleaned; stagnant water, rotten garbage, and animal excrement filled the gutters; the refuse of hotels and boarding-houses in every portion of the city ran out of the private sewers into the streets, and there rotted, and

contaminated the atmosphere; dead dogs, cats, and rats remained where they had fallen, and the streets and alleys became their cemeteries. The whole city is said to have been continuously enveloped in a disgusting odor. During the summer, the daily press continued to urge the condition of the city upon its officials. Their attention was called to the fact that cerebro-spinal meningitis, cholera, and small-pox were all over the country; that the summer was evidently an unhealthy one; and, finally, they were warned that unless measures were taken to cleanse the city, it would be stricken with a pestilence. That prediction was fulfilled; but its lesson has not been wholly lost. Already a substantial improvement has been effected in many respects, though much yet remains to be done in the direction of thorough drainage, sewerage, and policing, and the provision of a proper water supply. During this year (1874) the death-rate has been unusually low and the general health of the city exceptionally good—facts which, however, it is not pretended to claim as the direct results of any change yet accomplished in the sanitary conditions. These will produce positive effects slowly; while the present reduced death-rate and improved health are, in large measure, due to the carrying off by the epidemic of numbers of the debilitated and sickly—victims of imperfect hygiene—who would in the absence of the disease, have remained over to employ physicians and undertakers during 1874.

Mobile: September 10—November 29.

Although a case of yellow fever occurred in Mobile as early as the 21st of August, the introduction of the disease, which subsequently became epidemic, dates from the arrival, on the 10th of September, of a man named Dixon, from the neighborhood of Shreveport, Louisiana. The first case, that of the 21st of August, was in the person of a machinist, who went to New Orleans on the 16th of August, returned to Mobile the following day, was taken sick on the 21st, and died with black vomit on the 26th. His attending physician pronounced it yellow fever. Dixon, who, on his way to Mobile, had spent one night in Shreveport, but passed through New Orleans without stopping, was sick on his arrival, on the 10th of September, but the same evening went across the bay, and, returning the following morning, was found under an old shed on the steamboat wharf by a policeman, who conveyed him, by order of the city physician, to the hospital, where he died on the morning of the 13th of “unmistakable and malignant yellow fever.” On his way to hospital he was supported in the conveyance by the policeman, who was taken sick on the 15th, but

recovered, as did also his son, who was taken sick on the 18th. Dr. Jerome Cochran, who has published an elaborate memoir upon the yellow-fever epidemic of 1873, has collected reports of two hundred cases and thirty deaths occurring in the city; and of these, he states that the source of infection was traced in one hundred and thirty cases, and always, directly or indirectly, to this Shreveport case.

A watchman on a steamer lying at the end of the wharf from which Dixon, the Shreveport case, was taken, assisted in placing this man in the hospital ambulance, and was admitted to the marine hospital, suffering from what was recorded as intermittent fever. Dr. Crampton, the physician in charge, states that he had chills before his admission and subsequently on the 12th, 13th, and 14th of September, "after which, his fever became continuous, and the complication of another disease, yellow fever, was recognized. * * * This was a typical case of the existence of two distinct morbid poisons operating at the same time in the system. After a severe illness of seventeen days, and the occurrence of black vomit on the third day of the fever, reckoning from the date of its recognition, this patient made a fair recovery." Six other cases were reported as having occurred in this institution, with one death. In the City Hospital, where Dixon was carried, there were eight cases, all of which originated therein, none other being admitted from outside. Of this number, five died and three recovered. Four cases occurred in the Providence Infirmary, with three deaths. The first case in the person of Sister Regina, who, visiting those of her community at the City Hospital almost daily, (Gilmore,) was taken sick on the 15th and died on the 18th. These three buildings are contiguous to each other, and, together with the house of the policeman above referred to, on Spring Hill Road, a few hundred yards south of the City Hospital, became the centres of the infected belt, although scattering cases occurred in other portions of the city. As has been noticed elsewhere, both in this and in previous epidemics, the prisoners in the jail escaped the disease. This building is situated on the same block as the City Hospital, but separated from it by a high brick wall.

With one exception the sanitary condition of the city was excellent, and the season had been healthy to an almost unparalleled degree.—(Gilmore.) The exception noted was that of the mode of disposing of the night soil, dead animals, and garbage of the city. This is carted to a place outside of the city limits, about three miles from the river, called "Smith's dumping-ground," a place of unfragrant reputation, where dead animals and the contents of privy-vaults are transformed

into commercial fertilizers.—(Cochran.) In this neighborhood there occurred ten cases with five deaths; and whether, as Dr. Cochran suggests, from the emanations arising from these deposits or from some other cause, the cases occurring here were exceedingly malignant, as the rate of mortality, 50 per cent., sufficiently shows. An Advisory Board of Health was early established, and about the middle of September systematic disinfection was begun. The infected district was completely encircled with a cordon of carbolic acid, applied by means of a watering-cart, and the apartments and premises, where cases of the fever occurred, were thoroughly disinfected. Whether as the result of this disinfection or not, the disease, although occurring in seven widely remote localities outside of the infected district, was confined to the small area above noted. On this point the Advisory Board say:

We will commit ourselves to nothing relative to the virtue of the agents employed as destroyers or modifiers of the yellow-fever poison or germ until further experience demonstrates its undoubted efficacy. We regard this animalcular notion of disease as an offspring of the materialistic philosophy that has so largely taken possession of the human mind during the last thirty years, and look upon its truthfulness with great misgivings and doubts. The practical point in the application of the disinfectants is, that it must come in contact with each germ or animalcule to be distinctly efficacious, and it is believed by the New Orleans Board of Health that carbolic acid must be volatilized to reach each germ, and even then some of the germs may escape and others are only weakened. Cold is the only positive destroyer of the yellow-fever poison. It is thought that superheated steam would be equally as efficacious, but it is impossible of application by any appliance that we as yet possess, and can never be used except in close rooms. A high local sanitary condition, and an efficient quarantine, gives us our only safety that is undoubted and reliable.

Minor Places.

In addition to the cities of note above given, the disease appeared at Cairo, Ill., Greenwood, La., Calvert, Texas, Montgomery, Ala., and Forts Barrancas and Jefferson, Fla.; as well as at many suburban villages in the neighborhood of the larger cities whither it was carried by refugees.

Of these outbreaks the most important were at Montgomery and Calvert; about five hundred cases, according to Dr. R. F. Michel, in a remaining population of about 1,800, occurring at the former place, with a mortality of one hundred and eight, or over twenty per cent. of those attacked. Dr. Herron's narrative of the epidemic at Pensacola sufficiently shows how the disease was introduced into Montgomery; but, as illustrating the futility of spasmodic disinfection and intermittent attempts at sanitation, Dr. Michel's remarks may be here quoted:

“For two months prior to the visit of yellow fever, we had been imminently threatened with asiatic cholera. Two of the cities of the State, Huntsville and Birmingham, were being then seriously damaged by the havoc of that rapidly fatal disease. Indeed, one case absolutely made its way into our capital, but, fortunately for us, did not take root. In consequence of this condition of affairs, our city authorities worked hard, and worked well, to fend off the threatened invasion; and, with credit to them be it said, they were absolutely successful.” Successful, that is to say, so far as one disease was concerned; but what must have been the vital condition of a community of which nearly a third were stricken down by another disease in little more than five weeks?

Into Calvert the disease was introduced on the 3d of September, by a young man named Hughes, fleeing from Shreveport; was taken sick on the 5th, and died on the 10th with black vomit. Dr. W. L. Coleman, who first recognized the disease and was treated as Benjamin Rush was in 1793 for announcing the fact, gives a shocking picture of the condition of the town and of the indifference of the inhabitants to all warning. When the disease was finally acknowledged, the usual stampede occurred, and by the latter part of October, only six or seven hundred persons remained out of the usual population of 1,500. Of those remaining, Dr. Coleman estimates that four hundred and fifty were attacked, with at least one hundred and twenty-five deaths, exclusive of those who fled the place and were attacked and died elsewhere. The first frost was near the end of October, but it seemed to have no effect whatever on the progress of the epidemic. The material was indeed nearly consumed, but fifteen cases subsequently occurred, eight of them among returned refugees and new-comers. There were several frosts in November, but these also seemed not to lessen the virulence of the infection. The last case, a returned refugee, was taken sick on the 20th of December, and died on the 29th.—(Cochran.)

To Shreveport is also attributed the cases of the disease occurring at Greenwood and Cairo; at the former place by two young men, sons of a resident of Greenwood, but who had been employed at Shreveport and left there on account of the fever, on the 28th of September. One fell sick the following day and died on October 3, with black vomit; and eighteen other cases, with three more deaths, followed.—(Leary.) At Cairo, Dr. Horace Wardner records the reception of yellow-fever cases on September 1, 10, and 24, from river steamers carrying cotton direct from Shreveport and Memphis. In all, about forty-three cases with seventeen deaths occurred, the cases being confined to persons employed about the levee and in the construction of a new wharf for

the Illinois Central Railroad Company. Quarantine was established, but not until the arrival of the third instalment of fever patients on the 24th September.

The outbreaks at Forts Barrancas and Jefferson were among the troops at those posts, and resulted in twelve cases with three deaths at the former, and twenty-five cases with thirteen deaths at the latter place. Dr. G. M. Sternberg, Assistant Surgeon U. S. A., in his report to the Surgeon General on the disease at Barrancas, agrees substantially with Dr. Herron in his account of its introduction; and, incidentally, illustrates the difficulties in the way of an "impregnable quarantine," even of a small body of troops, backed up by "the exercise of absolute and relentless military authority." Of its origin at Fort Jefferson there is some doubt; Dr. Jos. Y. Porter, Acting Assistant Surgeon, U. S. A., who was on duty with the command and in charge of the hospital until September 10, up to which time there had been fourteen cases and three deaths, attributing it to germs surviving from previous seasons in a mass of old decayed buildings, rubbish, and filth of different kinds, adjacent to the fort. Dr. H. E. Brown, Assistant Surgeon, U. S. A., who arrived at the fort on the 6th of September, considers that the disease was imported into the garrison, by the little son of a Dr. Gould, who had visited Key West on the 9th of August and returned on the 11th, (Porter,) or 13th, (Brown,) and was taken sick on the 11th, (Porter,) or the 16th, (Brown,) with what was pronounced by the attending physicians, Dr. Gould, the father, and Dr. Porter, to be bilious-remittent fever, but which Dr. Brown considers was a mild form of yellow fever, contracted by the boy at Key West. Even if this latter hypothesis be correct, it is difficult to see what kind of a quarantine short of absolute non-intercourse with any person, place, or thing that ever had been visited by yellow fever, could have been effectual, since Key West at that time, and throughout the entire season, was declared free from yellow fever.

CONCLUSIONS.

It is believed that the following practical conclusions are warranted by the existing state of knowledge concerning yellow fever:

I.—That in the Western Hemisphere, certain poison-germs—the nature of which is yet unknown, but whose introduction into the human organism is necessary to the production of yellow fever—originate spontaneously in most, if not all, the West India Islands, at least, as far north as Nassau, New Providence, in latitude $25^{\circ} 5'$ north, Key West being in latitude $24^{\circ} 33'$.

II.—That such germs, if not exposed to a temperature below 32° Fahrenheit, or to the chemical action of certain agents, may retain their morbid potency for an unknown period in the holds of vessels, in storehouses, clothing, bedding, in masses of decaying animal and vegetable matter, and in soil containing such matter; and that such potency may be rendered active under favorable conditions, to wit, atmospheric exposure, moisture, and a temperature of 70 to 80° Fahrenheit.

III.—That, while it is not proven that these germs ever originate on United States territory—separated by only a few hours' sail from many of the islands where the disease is indigenous—it is known that they have survived the winter climate as high as latitude 30° north, under the conditions above recited, and have thus originated the disease exclusive of direct importation.

IV.—That from the foregoing conditions, viz., proximity and wide extent of original sources of the germs and their prolonged retention of morbid power, a quarantine of exclusion is impracticable and a quarantine of detention is useless.

V.—That immunity from yellow fever in the United States is attainable only through the most thorough sanitary measures, embracing—(1) the destruction of germs on shipboard, as well in the personal effects of passengers and crews, as in cargo, hold, and bilge, such destruction either by artificial frost (systems of Peteler and Strebe) or by chemical action; (2) the prompt isolation of each case as it appears, and the same treatment of possible germs from such cases, in bedding, &c., as above indicated; (3) a revolution in the sanitary conditions of water-side precincts, over which the board of health should have more complete authority than over other portions of the city.

It may finally be added that in the absence of other adequate cause, the gradual narrowing of the yellow-fever zone in the United States during the past fifty years—say from the time when leases in New York City contained a provision for reducing the rate of rents in the event of a depression of business from the advent of cholera or yellow fever—may be fairly claimed for the sanitarist and his efforts; and that in such efforts lies all there is of promise for the future in dealing with yellow fever.

Summary of Yellow-Fever Epidemic of 1873, showing the Localities, Dates of first and last Deaths, Number of Cases, Total and Proportionate Mortality.

Locality.	Date of first case.	Date of last death.	Total number of cases.	Total number of deaths.	Mortality per cent. of cases.	Remarks.
New York, N. Y.	May 23	Oct. 30	69	18	26.1	Sixty-two cases removed from vessels at quarantine. Two cases reached the city by land.
New Orleans, La.	July 4	Nov. 18	388	226	58.2	Origin of first case obscure. Number here given only those officially reported. Total cases estimated 2,000.
Pensacola, Fla.	Aug. 2	Nov. 19	600	62	10.1	Attributed to a vessel after 23 days' quarantine, and a month after release.
Memphis, Tenn.	Aug. 10	Nov. 19	10,000	2,000	20.	First cases landed from a New Orleans tow-boat. Not checked by heavy frosts.
Shreveport, La.	Aug. 12	Nov. 10	3,000	759	25.3	Weight of evidence in favor of its importation by water from New Orleans.
Montgomery, Ala.	Aug. 17	Nov. 10	500	108	21.6	Imported from Pensacola.
Mobile, Ala.	Aug. 21	Dec. 1	210	35	16.6	No spread of disease from first case, contracted in New Orleans. Epidemic local, initiated by migrant from Shreveport. New cases after frost.
Fort Jefferson, Fla. ...	Aug. 24	Oct. 6	25	13	52.	Among United States troops.
Cairo, Ill.	Sept. 1	Sept. 25	43	17	30.5	Brought by river steamers from Shreveport and Memphis.
Calvert, Texas.	Sept. 5	Déc. 29	450	125	27.7	Imported from Shreveport; very malignant. Not checked by frost.
Fort Barrancas, Fla. ..	Sept. 26	Nov. 12	12	3	25.	Among United States troops.
Greenwood, La.	Sept. 29	Oct. 29	18	4	22.2	Carried from Shreveport.
Minor places.			95	27	28.4	"Minor" as to number of cases, but embracing Louisville, Ky., Humboldt, Tenn., Corinth, Miss., Huntsville, Ala., and other places to which the disease was carried by refugees from epidemic centres, mentioned in the narrative.
Totals.			15,410	3,397		
Average mortality per cent. of all cases.					22.04	

INDEX.

INDEX.

A.

	Page.
Air, amount of, required for health	114
American Commerce and the Service. By FRANK W. REILLY, M. D.	121
Aneurisms	146

B.

Between-deck forecastles	116
BLAINE, J. G., on American Merchant Marine	15
BLANE, Sir GILBERT, on the lot of Seamen	123
Bright's disease	141
Brutality and starvation as a cause of disease and death	128
on shipboard	126, 129

C.

Cape Cod, a nursery of seamen	153
hospital for	154
the Service on. By PETER PINEO, M. D.	151
want of hospital provisions on	153
Chagres fever	196
Chelsea Hospital, Seamen and their Diseases in. By A. B. BANCROFT, M. D.	139
Cholera always imported	108
Collections, anticipated increase of, not realized	6
of hospital-dues on the Ohio	159
Colored boat hands, changed condition of	157
Comments and Note upon Contributed Papers. By the Supervising Surgeon	102
upon the Medical and Surgical Statistics of the Service. By the Supervising Surgeon.	97
Cost, amount of, defrayed by collections	4, 8, 20
of each patient treated	3, 4, 8, 20
relief	3, 4, 8, 20
in Government hospitals	12
to the Government	4, 8
Cystitis	148

D.

Deaths. (See <i>Mortality</i> .)	
Disease and death caused by starvation and brutality	128
Bright's	141
insufficient clothing a cause of	120
improper food as a cause of	120
propagated by sailors	108
Diseases and Injuries treated in the Service, tabular statement of	32
of river men caused by bad habits	165
—their causes and prevention. By HORACE WARDNER, M. D.	163
on the Great Lakes	169
prevalent	98
at Cairo	166
preventable among river men	161
venereal	99, 137, 146, 149, 167, 172, 173, 177
treated at Milwaukee	172

E.

	Page.
Emigrant vessels, relapsing fever brought by	108
Enteric fever	142
mortality from	142
Epidemics do not swell death rates	208
Erysipelas	145

F.

Fever, Chagres	196
enteric	142
malarial, at Cairo	165
pernicious intermittent	143
remittent	143
yellow, epidemic	203
at Pensacola	195
imported from Cuba in 1874	199
Fissure of the anus	144
Food, improper, as a cause of disease	120
improvement in quality of	117
on river steamers	160
Forecastle, a model	115
hygiene of the	105
neglect of	108
unhealthy	100, 108
ventilation of	114-116
Forecastles, between-deck	116
descriptions of	110, 111, 112, 129
forty years ago	129
on steamers	116
topgallant	116
Foreign vessels, sick seamen of	8
Freedmen and the Service on the Ohio. By P. H. BAILHACHE, M. D.	155
and whites, equality of treatment of	157
number employed on the Ohio	157
and whites, proportion of sickness among	157
Frostbite	146

G.

Gonorrhœa	146
Government hospitals	11
cost of relief in	12
Great Lakes, preventable disease on	169

H.

Health; syphilis, the scourge of the sailor and the public	175
Heart disease among sailors	120, 136
Hospital at Pittsburg	11
San Francisco	11
for Cape Cod	154
Hospital-dues, collection of, on the Ohio	159
collection of, unsatisfactory	6, 7
vessels subject to	3
relief ports on the Ohio	159
treatment, causes of reduced duration of	5

	Page.
Hospitals, cost of relief in Government	12
Government	11
lease of, recommended	12, 13
national marine	13
outlay on present, not recommended	12
Hygiene of the Forecastle. By HEBER SMITH, M. D.	105
outlay for, profitable	127
I.	
Insane merchant seamen	8
Inspections	9
Intemperance among river men	167
L.	
Lease of hospitals recommended	12, 13
Legislation affecting the sailor	6, 7, 8, 126, 128
suggested	6-8
Longevity of sailors	107
Louisville, improvement in the Service at	161
M.	
Malarial diseases	143, 172, 173
fevers at Cairo	165
diseases treated at Milwaukee	172
Malarious districts, sanitary regulations for	173
Marine-Hospital fund, source of the	3
surgeons, field of	127
Marine-Hospitals, national	13
Medical and Surgical Statistics of the Service, Comments upon. By the Supervising Surgeon..	97
inspection of sailors	161
seamen	127, 133, 135
Medicine, preventive, in the Service	14
Merchant vessels, rations on	118
marine, strength and tonnage of	3
Milwaukee, diseases and injuries treated at	171
origin of malarial diseases treated at	172
small-pox at	174
Missionary work among river men	167
Moisture on shipboard	117, 119
Mortality from Bright's disease	142
enteric fever	142
phthisis pulmonalis	99
syphilis as compared with other diseases	183
in British Army	183
cities	184
England	184
London	181
New York	183, 184
Philadelphia	183
the United States	184
United States Army	183
yellow fever at Pensacola in 1874	196, 197
in hospital	197, 198
private practice	197, 198
rate not increased by epidemics	208
resulting from brutality and starvation	128
tabular statement of, in the Service	85

N.	Page.
New York, exhibits of the Service at the port of	10
Note on Contributed Papers. By the Supervising Surgeon	102
O.	
Office of Supervising Surgeon, clerical labor in	10
Ohio, hospital-relief ports on the	159
number of freedmen employed on the	157
operations of the Service upon the	158
the Freedmen and the Service on the. By P. H. BAILHACHE, M. D.	155
Operations of the Service during 1874	3
P.	
Patients, increase of, in winter	101
Perineal fistula	148
Phthisis pulmonalis, causes of	119, 136
mortality from	99
sea-life injurious in	120
Pittsburg, hospital at	11
PLIMSOLL and his labors	127
Port inspections	9
Prevalent diseases	98
Preventable diseases among seamen	135
on the Great Lakes. By JAMES M. ALLEN, M. D.	169
diseases among river men	161
Preventive medicine in the Service	14
Prostate, enlargement of the	148
Prostitution, control of	149
regulation of	166, 173
Provisions, scale of, under the Shipping Commissioners' Act	118
United States Navy	118
Public health; syphilis, the scourge of the sailor and the	175
Q.	
Quarantine at New York	210
difficulties of	226
impracticability of	207
in yellow fever	226
worthless at Pensacola	* 195, 199
R.	
Rations in the United States Navy	118
on merchant vessels	118
Relapsing fever brought by emigrant vessels	108
Relief, cost of	3, 4, 8, 20
increase in the number of days of	4
mode of providing	8
Rheumatism	142
River boats, exacting nature of service on	160
men change boats often	158
character of	165
diseases of—their causes and prevention	163
caused by bad habits	165
intemperance among	167
low standard of	160
missionary work among	167
preventable diseases among	161
steamers, food on	160
insanitary condition of	167

S.

	Page.
Sailors and their Diseases in Chelsea Hospital. By A. B. BANCROFT, M. D.	139
Seaman, definition of the term.	7
Seamen, American, dying out.	107
and soldiers.	125
venereal disease.	109, 137
apathy to the condition of.	123
as propagators of disease.	108
sanitary subjects.	110
average sea-life of.	107
causes of sickness among.	110
character of Cape Cod.	153
legislation affecting.	126, 128
condition of.	133, 134
heart disease among.	120, 136
importance of merchant.	124
increase in the number of, relieved.	5
insane merchant.	8
JUDSON, Dr. A. B., on their condition.	110-112
longevity of.	107
lot of merchant.	149
medical inspection.	127, 133, 135, 161
not now embraced under the law.	7
physical incompetence of.	127, 135
popular conception of.	123
preventable diseases among.	135
scarcity of American.	14, 124, 129
causes.	124
sick, of foreign vessels.	8
no longer farmed out.	8
Sir GILBERT BLANE on the lot of.	123
space allowed, by the English law.	112
unseaworthy.	133
wrongs of.	108
Service, administration of.	9
American commerce and the.	123
an American institution.	15
argument against making, self-supporting.	6
character of the.	15
exhibit of the, at the port of New York.	10
foreign writers on the.	13
improvement in the, at Louisville.	161
nearly self-sustaining.	3, 7, 8
not a charity.	15
operations of the, during 1874.	3, 19, 21
on the Ohio.	158
preventive medicine in the.	14
special studies in the.	102
surgery of the.	100
the freedmen and the, on the Ohio.	157
Ship-life, definition of.	123
Shipboard, moisture on.	117, 119
Ship-owners, duty of.	112
Shipping Commissioners' Act, scale of provisions under.	118
Ships, sanitary supervision of.	109
unseaworthy.	128
Sickness, causes of, among seamen.	110

	Page.
Small-pox.....	98
and syphilis.....	187
at Milwaukee.....	174
Soldiers and seamen.....	125
Space allowed seamen by the English law.....	112
Starvation and brutality as a cause of disease and death.....	128
Statistics.....	17, 27
average duration of treatment.....	31
causes of mortality in 1874.....	85
collections in 1874.....	21
and expenditures from 1798 to 1874.....	23
comparative economic, of the Service.....	20
cost of Service in 1874.....	21
extent and average duration of hospital relief.....	92
financial and economic, for 1874.....	19
location, cost, and disposition of hospital buildings.....	25
medical and surgical.....	29
number of patients treated each month in 1874.....	31
in 1874.....	21
operations of the Service for 1874.....	21
prevalent causes of mortality.....	92
diseases.....	92
summary statement of the Service for 1874.....	19
ratio of deaths from specific causes in 1874.....	92
patients treated in each district.....	31
relative proportion of diseases and injuries in 1874.....	84
tabular record of United States Marine Hospitals from 1800 to 1874.....	25
tabular statement of diseases and injuries treated in 1874.....	32
table of hospital-relief districts.....	29
Steamers, food on river.....	160
forecastles on.....	116
insanitary condition of river.....	167
Stricture of the urethra.....	147
Surgeons, districts and district.....	9
marine-hospital, field of.....	127
Surgery of the Service.....	100
Syphilis.....	146, 149, 161, 166, 172, 177
and scarlatina.....	188
scrofula.....	186
small-pox.....	187
as a cause of death.....	181
preventable disease.....	137
congenital.....	183, 184
deaths from, in the American Army.....	183
British Army.....	183
cities.....	184
London.....	183, 184
New York.....	182
Philadelphia.....	183
as compared with other diseases.....	183
in England.....	184
the United States.....	184
exaggeration of writers on.....	185
in British Army.....	178
England.....	178
France.....	180

	Page.
France in merchant marine.....	178, 179
London.....	181
United States Army.....	178
Navy.....	178
influence of, on other diseases.....	185
over-estimate of the prevalence of.....	189
registration of.....	190
the Scourge of the Sailor and the Public Health. By FRED. R. STURGIS, M. D.	175

T.

Tax, decision of Congress on increasing the	6
The Service on Cape Cod. By PETER PINEO, M. D.....	151
Tonnage, increase in.....	4
of the merchant-marine.....	3
Topgallant forecastles	116
Treatment, causes of, reduced duration of	5
duration of.....	97
increased duration of, in winter.....	101
of yellow fever	198, 199

U.

Unseaworthy Sailors. By C. HENRY KING, M. D.	131
ships	128

V.

Vaccination	98, 174
Venereal disease among seamen	137
diseases	99, 109, 137, 146, 149, 166, 172, 173, 177
treated at Milwaukee	172
Ventilation, bottle plan of	114
of forecastles.....	114, 116
Vessels, emigrant, relapsing fever brought by	108
rations on merchant.....	118
subject to hospital-dues	3

W.

Water, pure	119
æration on shipboard	119

Y.

Yellow Fever at Pensacola. By JAMES S. HERRON, M. D.....	195
carbolic disinfection in New Orleans	214
conclusions as to.....	244
confusing accounts of	205
disinfection by frost	227
Epidemic of 1873. By FRANK W. REILLY, M. D.....	203
eruptions following	199
general sanitation in	207
germs, portability of	218, 219
persistent vitality of.....	212
history of the epidemic	209
at Fort Barrancas	244
Jefferson.....	243
in Cairo	243
Calvert	243

	Page.
Yellow Fever, history of the epidemic in Greenwood.....	243
Memphis	234
Mobile	240
Montgomery.....	216, 242
New Orleans.....	210
New York	209
Pensacola	214
Shreveport.....	238
improvement in sanitary condition of New Orleans	213
in hospital	234
sailors' boarding-houses	198
instructions of Supervising Surgeon concerning report on epidemic of 1873.....	203
lesson of the epidemic	206-208
meteorological conditions in.....	238
mortality from, at Pensacola in 1874.....	196, 198
moving, patients to hospital.....	198, 199
origin and nature of.....	225
perspiration in.....	232
Senate resolution ordering report on	203
Stone's epigram on.....	205
summary of, epidemic of 1873.....	246
treatment of	198, 199, 230
typhoid tendency in, at Pensacola, 1874	199
ventilation in	231

